ANNUAL MEETING: TORONTO, JUNE 20-24

DOES NOT CIRCULATE
UNIVERSITY OF MICHIGAN
MAY 17 1955
MEDICAL LIBRARY

BRITISH MEDICAL JOURNAL

JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

SATURDAY APRIL 30 1955

TABLE OF CONTENTS

The Changing Face of Medicine CLIFFORD KENNEDY, M.B., F.R.C.S.Ed., F.R.C.O.G. 1045
Youth Looks at General Practice C. P. D. GRANT, M.B. 1049
Decompression Treatment of Whooping-cough H. STANLEY BANKS, M.D., F.R.C.P. 1052
Cerebral Cysticercosis EDWIN R. BICKERSTAFF, M.D., M.R.C.P. 1055
Spontaneous Haemopneumothorax A. J. CLYNE, M.B., F.R.C.S., and F. H. D. HUTTER, M.B., F.R.C.S. 1058
Ulcerative Colitis Treated by Total Colectomy and Ileo-rectal Anastomosis STANLEY AYLETT, F.R.C.S. 1060
Anxiety Neurosis: Treatment by the General Practitioner RONALD A. B. RORIE, M.D., D.P.M. 1062
The Neurasthenic Psychopath W. L. TONGE, M.D., D.P.M. 1066
The Foot as a Half-dome J. MCKENZIE, M.B. 1068

MEDICAL MEMORANDA

Anorectal Ulcer in Chicken-pox. S. T. WINTER, M.B., D.C.H. 1070
Asphyxia Pallida Responding to Endotracheal Insufflation after 140 Minutes. J. A. HOLMES, M.A.O., D.Obst.R.C.O.G., and J. A. PAYNE, M.B. 1071

BOOK REVIEWS 1072

REFRESHER COURSE

"The Bleeder." R. G. MACFARLANE, M.A., M.D. 1080

GENERAL ARTICLES AND NEWS

Symptomless Hypertension 1083
Poliomyelitis Vaccine 1083
BLAND-SUTTON CENTENARY 1086
NOVA ET VETERA 1087
REPORTS OF SOCIETIES 1087
MEDICO-LEGAL 1099
MEDICAL NOTES IN PARLIAMENT 1099
VITAL STATISTICS 1101
MEDICAL NEWS 1103
QUESTIONS AND COMMENTS 1105

OBITUARY

R. Davies-Colley, C.M.G., M.Ch., F.R.C.S. 1097
W. Arthur Young, M.B., D.T.M.&H. 1097
R. H. Sankey, B.M., F.F.R. 1098
P. S. Martin, M.C., M.R.C.S. 1098
A. T. Woolward, M.R.C.S. 1098
R. D. Moore, M.C., L.M.S.S.A. 1099

LEADING ARTICLES

U.S.A. Trials of Poliomyelitis Vaccine 1074
Critics of the N.H.S. 1075
Tuberculosis after B.C.G. Vaccination 1076

ANNOTATIONS

World Fight Against Disease 1078
Giant Cells in Measles 1078
Cough Syncope 1079

CORRESPONDENCE

Exchange Transfusion. HYLTON SMITH, B.SC. 1089
E.S.R. at Low Temperature. J. MCLENACHAN, M.B., D.O., and E. L. TONKS, M.SC. 1089
Cancer. J. LOGAN, M.B. 1089
Malignant Melanoma and Pregnancy. S. G. CLAYTON, F.R.C.O.G. 1090
Meningo-encephalitis in Mumps. J. RICHARDSON, M.B. 1090

SUPPLEMENT

Full Contents on First Page of Supplement

Annual Representative Meeting: Provisional Time-table 205
G.M.S. Committee 206
The Winchester Address 207
Correspondence:
Patients of a Vacant Practice. D. M. O'CONNOR, F.R.C.S.I. 209
Ship Surgeons. M. DILLON, M.B. 209
Assistants in General Practice. LENNOX JOHNSTON, M.B. 209

CORRESPONDENCE—*contd.*

Encephalitis after Yellow Fever Vaccination. D. A. CANNON, M.B. 1090
Anticoagulant Therapy. M. DALES, M.B. 1090
Natural Childbirth. M. B. LENNARD, M.B.; ROSAMOND M. BISCHOFF, M.D.; DIANA CAMPBELL, M.B. 1091
Diabetic and Insulin Coma. H. JOSEPHS, M.R.C.S. 1091
Eclampsia. JOHN SOPHIAN, F.R.C.S. 1092
Injection Technique. J. A. RICHARDS, M.R.C.S.; N. R. BLUME, M.D. 1092
Heroin. R. HALE-WHITE, M.D.; A. R. HUNTER, F.F.A. R.C.S., and R. T. JOHNSON, F.R.C.S. 1092
Hysterectomy. KATHARINA DALTON, M.R.C.S. 1093
Lighting in Hospitals. C. F. SHARE, A.H.A. 1093
Numismatics. C. J. CITRON 1094
Tropical Pulmonary Eosinophilia. A. R. D. ADAMS, M.D., and others ..1094
Dental Fluorosis. DAGMAR C. WILSON, M.D. 1094
Dermatomyositis. HILLAS G. SMITH, M.B. 1094
Chlorpromazine. D. N. PARFITT, M.D. 1094
Benzene Hexachloride. K. B. EDWARDS, Ph.D. 1094
Night Cramps. R. G. ABERCROMBIE, M.D. 1095
Low Back Pain. A. B. COVER, M.B., and I. H. M. CURWEN, M.B. 1095
Alcohol and Road Accidents. N. I. SPRIGGS, F.R.C.S. 1095
Child Adoption. P. M. FEA, M.B. 1096
Cricket. R. PROSPER LISTON, M.B. 1096

BRITISH MEDICAL ASSOCIATION, TAVISTOCK SQUARE, LONDON, W.C.1

No. 4921, WEEKLY, PRICE 3/-

Copyright

REGISTERED AS A NEWSPAPER

POST GRADUATE STUDY

☞ Are you preparing for any higher Medical or Surgical Examination?

Send below for free valuable publication

"GUIDE to MEDICAL EXAMINATIONS"

PRINCIPAL CONTENTS

The F.R.C.S. England, Edinburgh and Ireland.
The M.R.C.P. London, Edinburgh and Ireland.
The M.D. Thesis of all Universities.
The F.F.A. and Diploma in Anaesthetics.
The Diploma in Tropical Medicine.
Diploma in Ophthalmology.
Diploma in Psychological Medicine.
Diploma in Child Health.
Diploma in Physical Medicine.
Diploma in Public Health.
Diploma in Pathology.
Diploma in Radiology.

You can prepare for any of these qualifications by postal study. We specialize in Post-graduate tuition.

Write stating examination in which interested to:

The Secretary,
MEDICAL CORRESPONDENCE COLLEGE,
19 Welbeck Street, London, W.1

PRESCRIPTION for PRACTITIONERS

A Sickness Policy with the Medical Sickness Society

TAKE ONE NOW

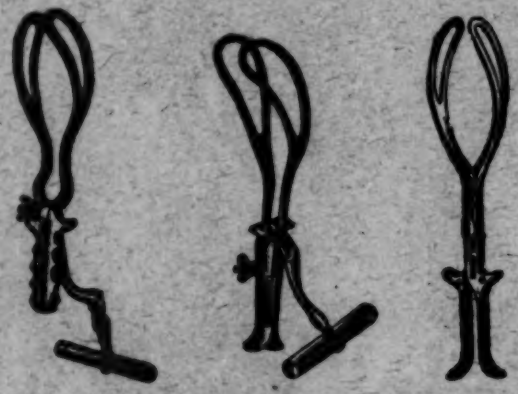
For particulars please write to the Society

3, CAVENDISH SQUARE
LONDON, W.1

Telephone: LANgham 2991 (3 lines) and 6496 (2 lines)

MIDWIFERY FORCEPS

FORGED FROM FINEST SHEFFIELD STAINLESS STEEL



GP 1472 GP 1473 GP 1469

GP 1472	Barnes' Midwifery Forceps with Simpson's handle and Neville's axis traction rod, stainless steel	£11	10 0
GP 1423	Ditto Anderson as above without axis traction, stainless steel	£8	0 0
GP 1473	Haig Fergusson's with axis traction, stainless steel ...	£11	10 0
GP 1471	(not illustrated) Ditto Milne Murray's	£13	10 0
GP 1469	Kielland's stainless steel	£8	10 0

Abridged catalogue on application

Inquiries invited for Obstetric Outfits and Instruments in general

HOLBORN SURGICAL INSTRUMENT Co. Ltd.
15 Charterhouse Street, Holborn Circus, London, E.C.1
Tel.: HOLborn 2268 (2 lines)

Corrective Efficiency and Absolute Comfort

SALT'S SACRO-ILIAC BELT

The adoption of Salt's Sacro-iliac Belt affords quick relief of pain and discomfort, together with a rapid restoration of the sacral and iliac bones. A beneficial effect is also exerted on the tone of the abdominal viscera. This efficiency is joined with real comfort, so that the patient can make an early resumption of normal activities. Styles are available for both sexes. Further details and Measure/Order forms are obtainable on request.

LONDON APPOINTMENTS:
1 Stanley House, 103 Marylebone High Street, London, W.1.
'Phone: WELbeck 3034.

SALT & SON LTD.

CHERRY STREET · BIRMINGHAM 2 · MID. 5455

BRITISH MEDICAL JOURNAL

LONDON SATURDAY APRIL 30 1955

THE CHANGING FACE OF MEDICINE*

BY

CLIFFORD KENNEDY, M.B., Ch.B., F.R.C.S.Ed., F.R.C.O.G.

Consulting Obstetrician and Gynaecologist, Royal Infirmary, Edinburgh

To the layman reading his daily paper, and in particular the ponderous and often pontifical pronunciations of our politicians, must come the belief that he lives in an era when all is well with medicine. I wonder if he is right. Why so often is the medical father of to-day relieved when his son, sometimes perhaps with a little persuasion, chooses a different career? The reason is that in this age of rapid transformation medicine has not escaped. The foundations upon which our work was built have been rudely shaken, and I sometimes wonder whether the structure above is beginning to totter. I would like to draw attention to several of the factors which I think may be playing their part in this change so far as it affects specialist practice, for I would not presume to speak of the worries which attend the general practitioner. Some of the causes are naturally of our own making; others have been thrust upon us through this new health service under which we work. I propose to treat my subject under four main headings: (1) undergraduate training; (2) registrar appointments and training; (3) changes in consultant practice; and (4) the law and medicine.

1. Undergraduate Training

It is always a good thing to raise the standard of anything, and with that end in view the course in medicine has been increased to one of six years. This step—I think an unnecessary one—might have been excusable had the extra year been devoted to clinical study rather than to the basic sciences. It was thought that by giving more time to the subjects at the beginning of the medical course the boy or girl in the last year of school might benefit from a broader education at that stage. The opposite result has, however, obtained, in so far as the schoolmaster, hearing of this additional year spent on the basic sciences at the university, has got the idea that still more attention should be given to those subjects at school, and as a result the whole idea has been nullified. It was interesting to hear some two years ago, from one vitally concerned in this change at the University of Edinburgh, an admission that a mistake had been made and that this further year of study should have been devoted to the end of the course rather than the beginning, and yet this mistake is apparently allowed to be perpetuated indefinitely.

I think it is true to say that Edinburgh, unlike some medical schools in the south, has always laid stress on providing the undergraduate with a solid foundation of theory on which to build his clinical study. There may be great value in this—indeed, it may be the correct approach and the best method of ensuring a sound training. But are we satisfied that this is not being overdone, that the medical undergraduate course is not too intense, too overcrowded? With increasing knowledge and an ever-widening research it is inevitable that there is nowadays more to learn; but, even allowing for this, there is sometimes the feeling that there is too much teaching, too much spoon-feeding, and that more good might derive from a less concentrated course of lectures and tutorials which would leave the student a little precious time to think for himself. Again, I would say there is an element of danger in instruction which lays too much emphasis on diagnosis made by the "back-room boys of medicine." How often, on asking a simple clinical question requiring an equally simple and straightforward clinical answer, are we advised, in a pitying sort of way, to have some fantastic biochemical investigation carried out; or, if it be a question of the head going through the pelvic brim, to have the patient *x*-rayed! It is singularly unfortunate that an assessment of the patient by the bedside appears nowadays to be deemed less essential and is becoming more carefree and haphazard. At the end of university training there is an invaluable year in hospital and then two years in the Services, when the mind of the doctor, so far as things medical are concerned, might in the average case be a complete vacuum. Postgraduate courses are nowadays popular and are an essential stimulant to the general practitioner, who, overburdened by the trivialities of present-day routine—trivialities encouraged by the attitude of the Welfare State mentality—has little time to keep abreast with advances in his subject. It is a sad reflection, though, that so many young men take those courses simply because during two years of Service life they have forgotten much of the teaching of their undergraduate days.

2. Registrar Appointments and Training

Suppose now that one of those doctors, finished with his National Service, wishes to specialize in obstetrics and gynaecology. At this stage he does three things. Assuming that he has done six months' medicine and six months' surgery in his year in hospital following graduation, he now spends another two years as house-surgeon in obstetrics and gynaecology. Then he becomes a registrar, and finally he prepares for the special examinations which are necessary. This last phase of

*The Presidential Address read to the Edinburgh Obstetrical Society on November 10, 1954.

specialization takes up another five or six years at least, so from the day he started medicine he will have spent some fifteen years in preparing for his specialty. But his programme is not yet complete—there is often a dreary wait before a suitable and congenial consultant post offers; indeed, the wait may prove too long and he may eventually be offered, and forced to accept on economic grounds, some junior post where he may carry out efficiently and conscientiously the work of a consultant without being granted the title. Is there any other profession which calls for such a prolonged period of preparation and apprenticeship? I wonder whether the layman, still reading about the improved status of the specialist, realizes all this.

Some will say, "But look—nowadays the resident appointments are associated with more adequate remuneration than in the past," and will remind me that, as compared with the honorarium of £25, raised ultimately to £40, which a clinical tutor of my time received in the gynaecological wards of the Edinburgh Royal Infirmary, his counterpart, the registrar of to-day, receives a princely salary and his financial position is secure so long as he holds his appointment. I wonder if this security is altogether a good thing and whether registrar appointments should be whole-time.

In the old days a clinical tutor's hospital appointment was part-time. To close the financial gap between starvation and a moderate degree of comfort he gave private tuition to the Fellowship candidate, to the final-year student, and on occasion even to the nurse. He might also conduct special classes for the various examinations. It was his privilege to assist his chief in private, and in addition he began to get the occasional private case himself, very often the obstetric patient unable to afford the fee of a more senior man. From all this the clinical tutor derived much benefit and a much wider experience. To-day the registrar appointment is whole-time; an introduction to private practice is therefore not possible, and even the assisting of his chief outside of hospital has on occasion been questioned.

The present-day system breeds a mentality whose horizon is bounded by the hospital walls. There is little awareness of the world outside, and the young registrar often has little or no desire to go through the monotonous routine of private tuition. The whole approach has tended to become more lethargic and more lackadaisical. The younger folk may not approve of this observation, but it is true nevertheless. They are losing some of the greatest thrills which we who were fortunate enough to work under another system experienced: the enormous satisfaction of making headway—financial headway, to take it at its lowest value, for I would not underrate the importance of that for one moment; making headway, then, by our own initiative, ability, and "private enterprise." There is no doubt whatever that almost any nationalized industry which lacks competition to keep it on its toes goes downhill—one does not need to look far to see that—and medicine will be no exception if a whole-time salaried service comes to pass. Already there is a levelling-up process taking place whereby the unsuccessful specialist of the past, through his hospital remuneration and the decline in private practice, will be on almost equal terms with his more able and more capable colleague. Once that happens and there is no real reward for merit, something will have gone out of the profession.

Now, I consider this to be of tremendous importance to the future of medicine. There is no doubt that a section of our politicians wish private practice to die out, and the quicker the better. They want instead a whole-time salaried State service. To my mind this would be a disaster of the first magnitude for the doctors and for the country. Rather should an active and virile private practice in friendly rivalry with the Health Service be our safeguard. I am quite sure that this system of whole-time registrar appointments, in so far as it denies the right to carry out, and finally kills any desire to take part in, private practice, is playing into the hands of the politicians. There is, too, another point. Whereas the clinical tutor of bygone days had his introduction to private practice during his five years of appointment, and therefore had something to fall back on when his tutorship expired and before he gained a position on the honorary staff, the registrar of to-day has no such introduction, and may well find himself in dire straits in the gap between.

May I digress for a moment to venture comment on the question of research, upon which ever-increasing stress is being laid. It is well known that nowadays, when applicants for a specialist post are being considered, first importance is given to any research that the individual may have carried out and the number of publications to which his name may be attached. Indeed, it is the advice of the senior consultants to the very junior that they must write and write and keep on writing if they want their application to be successful. It sometimes, nay quite frequently, matters naught, when the candidates are being discussed, whether the research was of practical worth, of particular brilliance, or, on the other hand, of no value whatever; it counts for nothing that, to many members of a varied appointing body, the publications might as well have been written in a foreign language with which they have become somewhat out of touch. The articles may be so much rubbish—they often are; the important point is that one very special candidate may have written more or is thought to be potentially a more likely research worker than another, and he is invariably the successful applicant. There is no doubt whatever that that is the position to-day, and it applies to most specialties. We have come to a pretty pass when such a situation can obtain that a first-rate clinician and a sound and experienced operator may be passed over just because he has not put pen to paper as often as another.

It must be obvious to the meanest intelligence that everyone who makes the decision to specialize is not destined to carry out original work or even to be a low-grade author. It has been said that a man should be given a taste for research before he is thirty or it may be difficult to get him started. This may be the grand ideal, but in actual fact the trainee of that age has already an overloaded plate and there may be no more space left for the non-essential trimmings. Do not therefore be too ready to condemn the young man as lazy; do not damn him just because he cannot write something "original." Let him work out his salvation in other ways—he will if he is given a sympathetic chance. Surely there is a place for both types in the scheme of things—the clinician and the research worker. After all, the main function of the average physician, surgeon, or gynaecologist is to alleviate suffering and heal the sick so far as lies in his power, and I would maintain that this should be the first concern of the vast majority. It seems rather dreadful that we have in these days to remind ourselves from time to time of our primary role. It is sad that in this present age of experiment we are sometimes apt to lose sight of the fundamentals of our calling.

3. The Changes in Consultant Practice

Now let us look for a moment at those of consultant status. Partly because of a changing outlook and partly as the result of this new system under which we work, we have been, as a class, divided and subdivided, and it is all-important to bear this in mind in the years to come if we are to present a solid front on matters of policy and on the improvement of the National Health Service. Most important of all, it would appear to me, is the chasm—unfortunately an ever-widening chasm—which divides whole-time and part-time appointments. I do not propose to discuss the relative merits of those appointments, for obvious reasons. Each has its own peculiar advantages. Let us all recognize those advantages and leave it at that—that would be the solution, but I am afraid it is not quite so easy. A year or two ago sarcastic, and indeed bitter, criticism was levelled at the part-time consultant. It is, of course, inevitable that we should criticize one another, but let such criticism not be tainted, let it be free of rancour.

In discussing this question with a general practitioner a month or two ago I was rather surprised when he said there would soon be a place for the general practitioner in the teaching of the undergraduate. He believed that if the whole-time specialist idea were to go on growing there would come a time when no consultant had contact with the patient outside of hospital, and something would be lost to teaching on that account. I sometimes wonder whether the influence of the whole-time teacher is not a little responsible for the too academic outlook of the present-day undergraduate. I am quite certain of this: the more we lose touch with the general practitioner—and the whole-timer is doing that now—the more will something vital depart from a valuable relationship. We need each other, we should get to know each other, and we should wish to help each other without hindrance of any kind.

We are divided again into four groups according to whether we have one of three grades of merit award or none at all. Following a letter to the *British Medical Journal** from Mr. John Simons on the subject of merit awards and stating that there was "considerable disquiet," Lord Moran replied in the same *Journal*† that this was "diametrically opposed to our experience." He describes in that letter the machinery involved in this labelling process—how, to begin with, in some areas small bodies advised the Awards Committee, and in other areas, notably "some of the London teaching hospitals," the task of recommendation was handled, at the request of the staff, by some of the senior members, who reported directly to the Awards Committee.

> "There was a feeling that it was not fair to ask those who had been given this difficult task to submit their conclusions, which were obviously of a confidential nature, in open committee to perhaps as many as thirty members, for they were asked not merely to submit a list of names to fill vacancies; it was necessary to supply the Awards Committee with the reasons which had led to the choice of those names. And it was found that many consultants were not prepared to furnish these reasons save to the Awards Committee, where they could feel assured that the confidential nature of their report would be respected."

Lord Moran goes on to say that the "master principle" which has guided them from the beginning in their selection for awards has been to tap as many sources of information as possible. "So only," he continues, "can we hope to eliminate prejudice and attain to some degree of accurate appraisement." He speaks of the successful working of the awards system, asks the question whether he is entitled to make any such claim, and concludes his letter thus: "It is indeed a remarkable achievement, which has its roots in the good sense of our people—an achievement, I think, beyond the reach of more selfish countries." It did not occasion much surprise to find in the next few weeks replies of very contrary opinion to this letter in both the *British Medical Journal* and the *Lancet*.

Cloaked in such diabolical secrecy as those awards are, it is often difficult to get at the truth, and, not unnaturally, the wildest rumours run riot, but enough is known to say that wrongful decisions have been made. There are three questions I would ask Lord Moran: (1) Is the original percentage of awards in the three grades being adhered to? (2) What is the number of consultants in the teaching schools of England and Scotland, and how many awards in each grade have been given to the men in those schools? (3) What is the number of consultants in the teaching schools of London, and how many awards in each grade have been given to the men in those schools? The answer to those three questions would be more than interesting. The suggestion is often made that certain regions—and now I refer particularly to the larger medical schools—have been dealt with more generously than others, implying that the standard of the specialists and of medicine in one area is infinitely superior to that in another. This I do not accept. We have no grouse whatever against the individual who is deemed worthy of a top-class award either by himself or by his fellows—let him have it by all means and good luck to him; our grouse is against a system which works so ineffectively and, so often, quite unfairly. The problem of improving this system is indeed a difficult one, because it is often impossible to get at the truth; the individual is afraid to complain—he feels that by so doing he makes his colleagues aware that he is a disappointed man; he is afraid also that by open complaint he may prejudice his chances for the future. Our national reserve and upbringing are no doubt responsible for the feeling that it is bad form to discuss this subject labelled "confidential," and so we tend to keep quiet about it. Silence therefore has been wrongly taken as approval of, and acquiescence in, the whole idea. It is unfortunate that it should be so. There is indeed grave disquiet in regard to the mechanism by which the awards are made, and unless we air our grievance openly and in a sufficiently large body there is little chance of having this part of our house put in order.

I gather that in Scotland there is a committee with representatives from different regions and from different specialties. Their opinions go to headquarters in London, where, I suppose, the recommendations are confirmed or rejected. Now, I would ask, what does the surgeon or physician on the committee know of the relative merits of one obstetrician as against another? The answer is, very little or nothing at all. They therefore have to be guided by their obstetric colleague, for I believe there is only one on the committee, and what can he know about the relative merits of his colleagues in regions far removed from his own? Again the answer is, very little or nothing at all. This whole question—a very vital question to most of us, for it affects not only our annual income but, what is more important, our pension—therefore is decided on hearsay and vague impressions—surely a Gilbertian situation.

What is the solution to all this? So far as I see it there are three alternatives. The first is that the whole scheme, born of unimaginative and insensitive mortal, be cast out and the money saved added to the consultants' ordinary salaries. I don't suppose that this is possible. The second is that a merit award should really be a merit award, and given from time to time—on the basis of an annual award—for particularly good work done in a single year. As things are at present, a man who has been given a top or even a second grade merit award is apt for the remainder of his active professional life to sit back and lose any desire to repeat his epic performance. The third possibility is that the mechanism by which these awards are made be radically changed. This could be done in many ways, but here is one method which, I think, is worthy of attention. Considering Scotland only, I would suggest that every year two or three representatives from each specialty in each of the four teaching schools be chosen. In obstetrics, for example, that would mean eight or twelve consultants, as senior as possible, getting together annually. They would discuss the various candidates in their own specialty and forward to the committee the names suggested. The claims from the various specialties could then be settled on a seniority basis. If the present Scottish committee is to remain, with important function, then there should be more than one representative for the major specialties. This enormous and onerous task is quite outside the capability and compass of one individual no matter how extraordinary he may be.

4. The Law and Medicine

I am quite prepared for criticism of, and even open disagreement with, much that I have said. I would be surprised, however, were there not unanimous approval of my final remarks, for an exposition of the changing face of medicine would not be complete without mention of the changed relationship between doctor and patient and between patient and hospital.

* June 26, 1954, *Supplement*, p. 359.
† July 17, 1954, *Supplement*, p. 69

The compensation payments made by National Health Hospital Authorities, largely resulting from claims for damages by patients, have risen from £7,560 in the period July, 1948–March, 1949, to £152,590 in 1953. This startling information was given in the House of Commons in answer to a question asking how much money the Ministry of Health had paid each year "in damages for neglect or inefficient medical or nursing treatment." Commenting on the figures, the questioner went on: "Is this not further evidence that the Health Service under State control breaks down when individuals are relieved of personal responsibility?" That question, of course, comes from a man who has no knowledge and less understanding of the doctor's worries and anxieties for his patient which are part of his heritage and his tradition. It is good to know that the Minister of Health replied: "Personally I both resent and repudiate that," and continued that he was certain that there had been absolutely no deterioration in care since the start of the National Health Service. Why then, if this be true—and I am sure it is—do we find headlines in the daily press featuring with ever-increasing frequency the actions brought by patients against the surgeon or against the hospital? I would say the main reasons are three in number.

(1) Free legal aid enables the individual to bring an action without risk of financial loss. If he loses his action the expense is borne by the State; if he wins he stands to gain. There is therefore no deterrent, and he probably gives little thought to the possible effect of such an action on the future of the unfortunate doctor. For, make no mistake, even should he lose his action and the doctor be vindicated, some of the mud which has been flung is liable to stick.

(2) There is the idea, all too prevalent, that nowadays it is the Government—the State if you like—that is being sued, not the doctor, for after all the doctor is merely the servant. This may in part be true, and where some doubt exists the jury may well take the line of reasoning that the State is wealthy and can well afford to pay the poor claimant something. What the jury, and, I fear, sometimes the more learned judge, are apt to leave out of reckoning is that the State is big enough to surmount and quickly forget such unpleasantness, but the poor doctor is damned for all time.

(3) In this present age, and in every walk of life, there is prevalent a desire to get something for nothing. One can hardly blame the man in the street for this, for such an outlook is being bred and fostered by the ideas behind the Welfare State, giving rise to a new mentality.

These are the factors which are responsible for this never-ending litigation. We must therefore ask ourselves, "What is the effect of all this?" and "What is the solution?" The effect is seen at all levels of hospital staff appointment from the most junior to the most senior. The young resident is often unwilling to undertake the responsibility of a casualty department because he is only too well aware of the pitfalls and dangers which may crowd the very beginning of his medical adventure. His more senior colleague, the anaesthetist, is burdened down by the fear of "death on the table," and anaesthetics suffer as a result. The surgeon finds that he is loath to undertake the "risky" case. In former days he would have gone ahead and in all probability done enough to make the last days of a patient's life more comfortable and more bearable. Now he is apt to adopt the attitude that as "something may happen" it would be safer to do nothing at all, and he sends the patient home to end his or her days in misery and pain. There is no doubt that this is happening to-day; I have done it myself. Again, he feels that by making a wide resection to eradicate disease and cure the patient some important structure may be subjected to trauma. And so he pulls up short; his work is rendered incomplete and the disease remains. On occasion in the old days there was a spirit of adventure about some surgical operation: some new procedure "came off" and a great advance was made. Now the surgeon may be unwilling to take this risk: he has to think of his own safety too. The advance of medical science will never be stopped, but initiative is being stifled, and the advance may well be slowed down if the surgeon is forced to work under the continual threat of retribution.

The solution is more difficult. The first essential is mutual trust and confidence between patient and doctor. The second is a change of outlook on this matter by the legal profession. The law has not been very helpful or sympathetic to us in those trying years, and expert evidence by eminent medical men would appear sometimes to have counted for nothing. The judgment has sometimes seemed harsh and bitter. A different attitude from our legal friends is of first importance, and I would go so far as to submit that many cases should be flung out at the beginning and never allowed to be heard in open court.

In a letter to *The Times* of October 26, 1954, S. Cochrane Shanks, President of the Medical Defence Union, stated that the number of claims for alleged medical negligence submitted to them in 1953 had increased by 80% as compared with 1947. He goes on:

> "Of the total claims during this period only one-third were justified, in that the union settled without going to court or lost the action in the courts. In the remaining two-thirds the plaintiff either abandoned the claim or lost it in the courts. Of the cases coming to court the same ratio obtains: the union successfully defended two-thirds and lost one-third.
>
> "It is evident from the above figures that many of these claims are unjustified, and as the plaintiff is now legally aided in about 80% of all cases the successful defendant is usually unable to recover any of his costs. In two recent cases, successfully defended by the Medical Defence Union, the union's costs exceeded £10,000, none of which was recoverable. The legal aid scheme makes proper and desirable provision for the impecunious plaintiff, but the question arises whether it should not be extended to cover the taxed costs of a successful defendant when the plaintiff is legally aided. Alternatively, there might be adopted in England the practice which already obtains in Scotland of allowing a prospective defendant, through his solicitor, to submit evidence as to why a certificate of legal aid should not be granted to the plaintiff. . . .
>
> "All three defence societies accept it as their duty to pay proper compensation for real negligence on the part of their members. Equally they feel concerned at the drain on their funds, and even more so at the damage to the good name of their members, by unjustified claims and legal actions."

In a magnificent article* on this subject Bryan McFarland, Professor of Orthopaedic Surgery at Liverpool University, has written:

> "No one is suggesting that the doctors should be immune from criticism or protected from retribution when they have erred. No one is suggesting that an injured person should be denied the right to proper compensation. What is suggested is that the machinery for settling these issues should be such that the doctor should only be put 'on the spot' if in the minds of responsible members of the legal and medical professions he has been negligent.
>
> "It would not be difficult, for instance, for the merits of a case to be judged by a tribunal such as deals with appeals under the National Insurance Scheme—a tribunal nominated by high authority and consisting of two medical men with a lawyer as chairman. If such a tribunal were to decide that there was a case to answer then the doctor should have to answer it. If on the other hand it was thought that no particular doctor had been negligent but that the hospital system or arrangements or staffing as a whole had behaved inadequately, then the hospital would have to answer. If it was thought that the damage resulted from something 'going wrong' in which no negligence was involved, then neither doctor nor hospital would have to answer."

* *Liverpool Daily Post*, May 6, 1954.

This solution might not be acceptable to the law, but I feel sure the medical profession would welcome such a compromise.

I have but touched the fringe of the subject. One could ask whether, with the enormous cost to the country which this new service entails, the patient has benefited in the essentials of treatment; whether the vast administrative wheel, which often grinds so slowly, might be made smaller and yet more effective; whether the endless committees, which force the public-spirited to spend almost as much time in the train as in the hospital, are so necessary; and whether great power and influence vested in the hands of a few satisfies our democratic ideals. Those are but a few of the problems.

It has fallen to our generation to work out and put into practice this new regime in medicine. Changes, whether we like them or not, are taking place around us all the time and we have to make the best of them; but, with the highest ideals ever before us, let us see that it is the best. Let there be honesty and frankness among us and let us frown on intrigue—for there is much of that in medicine at the present day—and cast it out. Let gentle suasion never steer us away from a true sense of values, and, above all, let us never forget that our first aim should be to heal and cure the sick.

YOUTH LOOKS AT GENERAL PRACTICE*

BY

C. P. D. GRANT, M.B., Ch.B.

Glasgow

It might be of interest to the profession to know what a recently qualified doctor, and therefore one without specialist training and with only a short experience as a practitioner, thinks of some aspects of general practice to-day. The views I express are my own and not necessarily those of the younger generation as a whole. Furthermore, if any of my comments appear unduly critical of those older and wiser than myself, they are in no way intended as an impertinence, and I hope will not be so regarded.

The student of to-day working for his "finals," and faced with a compulsory year in hospital followed by two years' National Service, probably does not give much thought to general practice, though he may well be thinking of it rather vaguely as a future career. In fact I would suggest that many final-year students and "neo-graduates" rather tend to have a leaning towards some specialty. This is not unnatural, since the training is almost entirely in the hands of specialists, and this despite the fact that many of the students are destined to become general practitioners. The year of compulsory internship may accentuate any specialist leaning, as by now the young doctor is even more closely bound by the hospital tie. However, it is not easy to become a consultant these days, and, if a man is contemplating taking a wife, it is difficult to marry on a resident's or S.H.O.'s salary. Furthermore, the thought of the high failure rate in the F.R.C.S., M.R.C.P., and other specialist examinations may deter him from pursuing his choice. So, rather unwillingly perhaps, he plunges into the unknown and looks for a job in practice, leaving behind him, probably for good, the world of starched aprons and white coats. His idea of what is involved is, more than likely, rather vague, since he has had no specific training for general practice. I myself had had the advantage of being reared in a medical household, but despite this my knowledge of the job to be tackled was far from clear. I cannot say I was very enthusiastic. I had been told by friends with some slight experience that all was not well. The hospital swallowed all the clinical interest. The hours were long and tedious, and the day was spent coping with queues of "not-so-very-sick" but demanding people out to see what they could get for nothing. And so, by now not quite so confident, I crossed the threshold with a background of three residencies and National Service completed.

*An address given to the Southern Medical Society of Glasgow on November 25, 1954.

Initial Difficulties

What were my initial difficulties and worries?

First, I think, would my knowledge be sufficient? I had no idea what measles looked like, or mumps. When I was a resident there had always been someone else to take the ultimate responsibility of the patient. Now it was to be my turn. How would I fare? What on earth would I prescribe? I realized with horror I could not really write a prescription. I imagined that I would meet with much more of the hospital type of illness than I actually did. However, with this kind of illness I found that my knowledge was sufficient; but when it came to bronchitis, influenza, childish febrile conditions, rheumatism, tonsillitis, old age and its problems, and so on, I discovered I was not so clever. Their mysteries were all contained in a closed book which had to be opened and studied closely page by page, and yet this was to be the bulk of my everyday work.

Prescribing turned out to be easier than I had anticipated. The local chemist proved a great help, and there was always the *National Formulary*. However, the temptation to prescribe proprietaries with their easily remembered names was the severest trial. Furthermore, the persistent pestering of the drug firms via the post and the traveller would break down the ideals of all but the very righteous. Nowadays there seems to be no need to write an old-fashioned prescription at all: there usually turns out to be a proprietary equivalent, which is supposed to be as cheap and equally efficacious. At least, so say the manufacturers' travellers.

Restrictions Imposed by the N.H.S.

My early reaction to the volume of trivial complaints brought to me was, This is not medicine at all: a fourth-year medical student could cope. There seemed to be so many people to be seen that even when one had separated the wheat from the chaff there was not time to deal properly with the wheat.

The cessation of clinical control of patients removed to hospital under the National Health Service seemed to me a great loss. On the other hand, it was often not a bad thing to be relieved of the responsibility and worry, allowing one to concentrate on the ordinary run of everyday work. The fact that it was found necessary to refer to hospital anyone requiring even a simple diagnostic investigation proved a great irritation to the late house officer who had so recently himself had the power to order many of these investigations. And the delay in waiting for out-patient appointments was most frustrating. Often weeks would elapse before the answer to a clinical problem arrived by post on one's desk.

In many cases it appeared to me superfluous for the hospital officer to enter into the picture at all. He merely seemed to act as a middleman anyway. Why should I personally not have more direct access to such investigations as "*x*-ray chest," "straight *x*-ray abdomen," blood counts, and minor biochemical and pathological investigations? More important still, it appeared to me that the patient must think that, because he has been sent to hospital for all but the very trivial, the G.P. is only good for this. I

am sure this has done much to lower the general practitioner's standing in the public eye. This is borne out by the fact that even when the general practitioner may himself wish to carry out certain investigations or try out this or that treatment, patients are often better pleased if sent direct to see "the Professor." They demand specialist opinion and *x*-rays as a right for which they have paid.

The fact that the numbers the G.P. must care for in order to earn a living wage to-day inevitably result in crowded surgeries does not help either. The G.P. with a large list, who has to cope with a multitude of trivial complaints, will have to resist very strongly the temptation to refer to hospital; the easiest way to satisfy a hungry public is to pass the clinical buck. The system seems designed to undermine incentive and initiative. It is too easy to cultivate a *laissez-faire* attitude of "we are paid anyway." Loss of interest in the practice of clinical medicine as such may soon follow, and the way is wide open for the habit of practising slovenly medicine. The G.P. can very easily degenerate into a rather apathetic kind of sorting clerk, doing very slipshod work. What a system!

In this connexion it might be interesting to quote a passage from a letter I received recently from a friend now in practice in Canada. "After working for eighteen months with a socialized medical scheme run by . . . Corporation," he writes, "I quit . . . due to the fact that I felt I was on a large treadmill which went round faster the harder you climbed. I knew that if I did not get out I would lapse into the easy-going way some of the older men had developed over the years—namely, they are company patients. They do not expect exotic medicine. I had enough drive and belief in medicine to feel I could not go on this way. I tried hard to do good work, but woke up one morning to the terrible sensation of defeat, knowing I was slipping. So I got out into private practice, where I am much happier." The tragedy is that he might well have been talking about National Health Service practice in Britain to-day. Here, however, we have no such escape into private practice.

A Comparison

I should like to say a word about Canadian practice, which I had the good fortune to see for myself a year or two ago. A New World general practitioner would be aghast if he were asked to work under our system. To him it is fundamental to the practice of good medicine that he personally looks after his patients in hospital and supervises the various investigations which may be necessary. He often works from a rented office in what is called a Medical Arts Building—rather similar to the health centre envisaged in this country. His consulting-rooms are almost invariably more elaborate than ours. He normally employs a nurse, and often also a laboratory technician who is frequently trained to do *x*-ray work and electrocardiography as well. But the Canadian is remunerated on a basis of fee for services rendered, which makes all this possible. Unfortunately, from the patient's point of view an illness is a very expensive calamity, even though the type of service is of a very high order. More important than this is the fact that, if he is to give the patient of his best, he must keep up to date with medical advances. In this country, with the attitude tending towards hospital referral for all but the trivial, there is no such pressing need. This, I feel, inevitably lowers the standard of general medical practice, and incidentally the prestige of the practitioner.

Learning the Job

But I have wandered from my story, which was beginning to show how general practice was not all it might be. After a few months I paused to reflect. I had had to work harder than I had ever done before, mentally and physically (all my patients seem to live in a top flat). I had had to learn to control a temper, which I had not realized existed, when malingerers wanted certificates and ignorant people called me out needlessly in the small hours. Although in partnership practice, and despite the fact that I was seeing people all day, I felt rather lonely. I longed to be back in the hospital atmosphere.

However, by this time I was beginning to learn a little about my new job—such things as how to get a home help and how to diagnose measles before the spots came. Then very gradually, just when I was getting rather despondent, it began to dawn on me that there was more to general practice than met the eye. The drama of the operating theatre and the brilliant diagnosis of difficult cases was not my province at all. Here was to be found a different type of satisfaction where, as Osler said, "your heart will be exercised equally with your head." The sea of faces which initially presented in the waiting-room was, at the outset, very like that met with in any hospital out-patient department, but gradually the faces began to take on a familiar pattern and to develop personalities. I began to see that my job was mainly people—people as personalities, as human beings, who had families and worries; girls who got married and had babies. More time went by, and by now I had quite a family of babies, the oldest of whom was nearly two and a half.

Again I paused to reflect. My hospital outlook was beginning to recede. I had almost forgotten such things as the 17-ketosteroids. Instead I had learned a great deal about people, how to handle them, how to reassure them, and how to talk to them in simple language. It appalled me to see how much social conditions had to do with illness—such things as overcrowding and living with in-laws. I had learned that most working-class patients expect a bottle and are not content with advice only; that an illness must be labelled, confidently (whether the label is right or wrong does not always seem to matter); that the stethoscope still has a magic power psychologically despite its many failings in the light of modern *x*-ray technique and the remark of a specialist overheard recently that there are two methods of examining the chest—percussion and *x*-ray.

By now I realized I was beginning to learn a little about how to be a general practitioner. I began to appreciate the full meaning of Osler's words when he said, "The practice of medicine is an art, not a trade; a calling, not a business." In fact, by this time, somewhat to my own surprise, I began to like general practice.

The Personal Touch

We are living in a scientific age. Medicine has not escaped, but sometimes I feel we get carried away by mechanical devices and forget that primarily our job is people. Fortunately I realized that I was interested in people, which was just as well, because without that interest I should be lost. Something else struck me rather forcibly: in hospital I had been a cog in a machine; now I was very largely my own master. Furthermore, so far as my patients were concerned, and despite their readiness and willingness to be sent to hospital, I was still *their doctor*. All this I found very satisfying. But for all this new-found satisfaction I still missed hospital. It did not seem natural to one who had spent nearly six years therein that its doors should now be closed. It seemed to me nonsensical that, once the choice of general practice or a specialty had been made, the decision should be binding and irreversible. Unfortunately to-day there is a widening gap between hospital staff and general practitioners. This, I feel, is a great pity, but not unnatural since they now really do two very different kinds of job. It apparently takes years and years to train a specialist these days. Furthermore, there is a feeling current that hospital work is very arduous. Be that as it may, much of hospital work is routine and does not need very advanced or specialized knowledge. It does not seem unreasonable to suggest that G.P.s should be attached to hospitals as clinical assistants doing much of the work at present done by registrars. This would add greatly to the interest of the G.P.s concerned, and incidentally might go a long way towards solving the present registrar problem.

I should like here to say a word or two about present-day hospital staff. Many of them, bubbling over with scientific facts, tend to lack the human touch. Too often they think of their patients as cases rather than as people. The patient of to-day frequently complains that he is told nothing in hospital. Perhaps it is just as well for the nursing staff or the G.P. to be left to explain some things, but it would appear to have gone too far when the patient recently discharged from hospital has to ask his G.P. what was removed at operation and why. Incidentally it adds to the confusion of the practitioner, not to mention the patient, when the hospital letter is not forthcoming for a further week.

In my opinion the trainee consultant, as well as mastering his specialty, must also learn how to handle people. I feel that he can best learn this in general practice; only there can he appreciate the individual as a whole. Goodness knows, the medical training is long enough to-day. But for all this, I cannot help thinking that it would be a good idea to make a period in practice as essential a qualification to the aspiring consultant as the year in hospital is to the prospective general practitioner.

Midwifery and Obstetrics

Midwifery used to be so much the concern of the family doctor. Nowadays, for social and other reasons, more mothers are opting to be confined in hospital and the average practitioner is doing less and less midwifery. In one way this is not a bad thing, for equipment is at hand for dealing with any emergency that may arise. However, there is at present in Glasgow a regulation in force which I would like to quote without further comment: "Unless a woman attends an antenatal or local authority clinic she cannot have an assurance that she will get a hospital bed." I do not see why G.P.s should not look after their own antenatal patients if they should so desire, even those women who intend to have a hospital confinement. It would greatly add to the practitioner's interest and provide an admirable opportunity for establishing a good doctor–patient relationship. The mother, too, would generally rather attend her own doctor than an impersonal clinic, but is afraid to do so because she may not get into hospital. In any event, the general practitioner is the one who has to deal with an antenatal emergency when it arises, not the clinic.

Our Patients

And now what about our patients themselves? I have found the vast majority very considerate and appreciative of what is done for them; but then I am fortunate to be dealing with a decent working-class type of patient, most of them ex-panel patients, those for whom the service should have been primarily designed. Ex-private patients tend to be somewhat demanding. The fact that they can read a clinical thermometer more readily and have a telephone in their house may sometimes be a nuisance. They are more prone to call one out needlessly on a wet night than those who have to find three pennies and go and brave the storm to find a public call-box. Broadly speaking, the younger generation take very little responsibility on their own shoulders and often tend to call the doctor at the least provocation. They have no idea of the cost of drugs and hospital investigations and could not care less. Their elders, on the other hand, frequently apologize for sending and often wait longer than they should before doing so.

There is no doubt that the established young general practitioner in partnership practice to-day has a much easier time of it than had his predecessors. His nights are less frequently disturbed, mainly because there is now less domiciliary midwifery, and his off-duty time is much more regular with the inception of the rota system. Finally he has a secure, pensionable job. So far as his patients are concerned, there is greater continuity of care and incidentally of clinical records, since patients are now on a list and do not often change their doctor. There is no longer a financial barrier between patient and doctor, who can prescribe freely without fear that the patient may not be able to afford his treatment. But at the same time removal of this barrier lets in the malingerers and neurotics—the pests, the 10% hard core of every doctor's list who are never far away from the surgery door.

I would like to stress that there is a very real danger that the young practitioner, excluded from the hospital and committed to his desk by the system, may become apathetic, especially since it no longer seems to be worth while building up a good class of practice: one only ends up with more trouble and less money. The politicians seem to be doing their best to discourage private practice, which to many doctors and patients is a far more satisfactory method of rendering service, despite the fact that it is often more wearing and not necessarily any more lucrative. I feel that private practice provides an opportunity for rewarding incentive and initiative, and is good for one inasmuch as it keeps one on one's toes and guards against the development of slovenly habits. The next step may well be that of a State-salaried service. This would indeed be a tragedy.

Teaching General Practice

But to revert to the student. What should he be taught about general practice? I think that the training of the general practitioner is largely a postgraduate affair; but the student must be taught more about practice than at present, if only to encourage greater numbers to enter this field and with more enthusiasm. A series of lectures by general practitioners interspersed throughout the final two student years might maintain a proper balance, because too often the specialist teacher tends to exaggerate the importance of his own subject.

What, then, are the prerequisites for entering general practice? First, knowledge; the student should concentrate on seeing as much as he possibly can in the out-patient department, because never again will he meet such a wealth of clinical material. If time permits, and he does not want to get married, he should hold three house appointments, possibly in medicine, surgery, and obstetrics and gynaecology. If he can find time to do a bit of dermatology and casualty work, so much the better. Secondly—and this is very important—he must have a liking for people, particularly children.

If the young general practitioner refers everything in sight to hospital, then naturally the aura of omniscience which surrounds the hospital officer in the public eye will be magnified. The status of the general practitioner is still what he himself makes it. Despite its many present-day failings, general practice remains a branch of medicine in which is to be found a great deal of satisfaction. I believe that, taken seriously and practised conscientiously, it is the most difficult specialty of all.

Plans for reorganizing medical teaching departments on more modern lines are set out in part 5, *Medical Sciences*, of Volume III of the Unesco series *Inventories of Apparatus and Materials for Teaching Science*. Prepared jointly with W.H.O., the book is chiefly intended for use in new medical schools. It contains lists of equipment needed for the instruction of medical students in anatomy, bacteriology, biochemistry, histology, morbid anatomy (pathology), pharmacology, physiology, and preventive and social medicine (hygiene and public health), and gives rough indications of prices. Each list is preceded by a short discussion of teaching methods with special reference to the organization of practical work. The English edition may be obtained through the national distributors of Unesco publications or the Sales and Distribution Division of Unesco, Paris. The price is 15s. 6d.

DECOMPRESSION TREATMENT OF WHOOPING-COUGH

A CLINICAL SURVEY OF 903 CASES

BY

H. STANLEY BANKS, M.D., F.R.C.P.
Late Senior Physician, Park Hospital, London

Weekly or twice-weekly clinic sessions for the treatment of whooping-cough by low air-pressure in a decompression chamber have been held in this hospital since May, 1949, except for short periods when the prevalence of the disease was very low. The chamber was purchased from the Royal Air Force by the Ministry of Health in 1948, was conveyed to its present site by the London County Council, and was reconditioned and refitted by the Lewisham Group Hospital Management Committee. At that time considerable public interest had been aroused in high flying and decompression treatment, and, by request, I published a brief preliminary account of it with illustrations of the chamber in action (Banks, 1949).

Selection and Examination of Patients

During the five and a half years 903 patients were treated, but the results could be assessed in only 782, of whom 686 were out-patients and 96 in-patients. The out-patients were sent by their doctors by arrangement with the Emergency Bed Service, and in accordance with a simple plan. Patients were generally accepted only if they had been coughing for about three weeks or more, and the doctor was asked to instruct the parent to take to the clinic a record of the number of coughs, whoops, and vomits observed during the 48 hours before attendance. Every case was personally interviewed and examined by me or by my colleague Dr. L. J. M. Laurent. The history was checked and the estimated day of disease recorded. The record of coughs and vomits of food day and night for two days was verified; particulars of appetite, activity, lethargy, fretfulness, or loss of weight were noted; and the parent was asked whether she thought the condition was stationary, improving, or getting worse. The faeces, tympanic membranes, and chest were examined, the temperature was taken, any cyanosis or tachypnoea was noted, and in a very large proportion of cases the chest was radiographed.

I soon learned to reject the more acutely ill cases, especially those with pyrexia, or cyanosis, or with more than a minimal degree of pulmonary collapse as shown radiographically, usually by shadows filling the cardiophrenic angles. The cases deemed too ill for decompression were either admitted to hospital or sent home with a letter to the doctor advising rest in bed and, if necessary, treatment later for pulmonary collapse. Minimal atelectasis in a bright, active, apyrexial child was not regarded as a contraindication, nor were rhonchi and other signs of bronchitis without fever.

Decompression Treatment

The selected cases, up to six or eight at a time, went into the chamber accompanied by a nurse or ward orderly, or by the parent in the case of some infants or a young frightened child. In cold weather the children were kept warm by hot bottles and blankets, the chamber itself having been pre-heated by an electric radiator. Picture books and toys were provided and stories were read to the younger children, usually until they fell asleep lulled by the hum of the motor. Oxygen was laid on inside the chamber, but was used only once in five and a half years. A telephone connected the occupants of the chamber with the porter-operator, who watched them through a porthole window during the whole course of the treatment. The pressure of air in the chamber was reduced progressively for about 20 minutes until the equivalent of a height of 12,000 feet (3,660 metres) was reached. This low pressure was maintained for 45 minutes and then gradually increased during the 20 to 25 minutes "descent." The treatment thus lasted about 90 minutes. Some pain in the ears and deafness were commonly experienced during the "descent" and for a short time thereafter. In this routine a hitch occurred only on two occasions, once when a woman in the chamber became hysterical, and once when the motor failed. In both cases "ground level" was regained without incident.

Assessment of Results

A form was provided upon which the parent or ward staff was asked to record the time and character of each cough and food vomit during a period of 48 hours *commencing one week after the treatment*; in addition they were asked to report in a few words their impressions of the progress or otherwise of the child from the date of treatment until the date of the report. The completed forms were sent to me generally about the tenth day after decompression. They were delayed for two weeks or so in a small proportion and occasionally a reminder had to be sent out after about two weeks. The factual report on coughs and vomits, and the mother's or ward sister's statement of her impressions of the result of the treatment, taken in conjunction with the recorded data before treatment and the stage of the disease, formed the basis upon which the assessment of the results was made. The factual report on coughs and vomits was usually far better done by the parent than by the ward staff, although the "summing up" by the ward staff after a week was quite good. A feature of this work, however, was the obvious care taken by most of the parents to produce an accurate factual record of coughs and vomits for the 48-hour period. Sometimes the statement of their impressions seemed unduly optimistic in view of the factual report, and in such cases it was treated with reserve.

The assessment of the results on this basis was usually not difficult. It was made by me personally in the great majority of cases, and by Dr. Laurent in my absence. Our marking was conservative and showed almost complete agreement. A sample series of 462 cases was assessed by Dr. Laurent independently, without knowledge of the marking which had already been given by me. His marking turned out to be the same as mine except in 14 cases—a difference of assessment of only 3% between two observers working independently.

The following classification of results was adopted:

XX = Improvement marked and rapid in four to seven days or less, with virtual cessation of the paroxysmal cough.

X = Improvement more gradual over seven to ten days, but probably significant.

X− = Improvement likely to be attributable to the natural progress of the disease at that stage.

O = No improvement in 10 days.

OO = Worse. (Cases excepted in which increased cough and expectoration was limited to 24–48 hours; this was not uncommon.)

TABLE I.—*Cases Treated but Not Assessed*

	1949	1950	1951	1952	1953	1954	Total
Disease too mild ..	1	7	7	6	5	—	26
,, ,, acute ..	2	5	1	1	—	—	9
,, ,, early* ..	—	8	1	1	2	1	13
No report	—	12	9	12	25	15	73
Total ..	3	32	18	20	32	16	121

* Less than 2½ weeks of disease.

Cases Excluded from Assessment (Table I)

Mild Cases.—Twenty-six cases, though treated, were so mild that no accurate assessment of the result was possible.

Acutely Ill Cases.—Nine cases with mild pyrexia or cyanosis and atelectasis were treated by decompression

experimentally in the first year or two. Such cases were thereafter excluded, as this was found to be wrong practice.

Early Cases.—Decompression is a physical treatment which cannot be expected to stem the advance of the disease in the first two and a half to three weeks. Although there was an occasional apparent exception to this rule the assessment of results probably gained in precision by the exclusion of the 13 cases treated at a stage of the disease earlier than two and a half weeks.

No Report.—Seventy-three treated cases had to be excluded because no report on the results was received.

Results

Effect on Cough, Vomiting, and General Conditions.—Table II indicates that marked rapid improvement with virtual cessation of paroxysmal cough (XX) occurred in

TABLE II.—*Cases Treated by Decompression and Assessed Results*

Classified Result*	1949	1950	1951	1952	1953	1954	Total	%
XX	20	68	55	30	26	21	220	28·2
X	21	93	60	33	36	23	266	34·1
X-	15	48	34	17	16	11	141	18·0
O	18	36	37	18	29	13	151	19·2
OO	—	3	—	1	—	—	4	0·5
Total assessed ..	74	248	186	99	107	68	782	100·0

* See text.

28.2% of the assessed cases, and slower but probably significant improvement (X) in a further 34.1%; while in 37.7% the treatment appeared to have no effect.

Effect on Vomiting.—A particularly valuable sequel to the treatment in many cases was the relief of vomiting (Table III). Among the 427 children who were vomiting

TABLE III.—*Cases Vomiting Food (more than once daily)*

	1949	1950	1951	1952	1953	1954	Total	%
Vomiting stopped	18	84	60	33	30	21	246	57·7
,, reduced	10	30	22	7	10	6	85	20·0
,, unrelieved ..	9	34	22	12	15	4	96	22·3
Total ..	37	148	104	52	55	31	427	100·0

food more than once daily just before treatment, the vomiting stopped fairly abruptly in 57.7%, was reduced in a further 20%, and was unrelieved in 22.3%. This was something for which the parents were especially grateful.

Influence of Sex.—Table IV shows the sex incidence of the assessed cases. There is a considerable preponderance of females, as in all statistics of whooping-cough. This

TABLE IV.—*Sex Incidence of Assessed Cases*

	1949	1950	1951	1952	1953	1954	Total
Males	36	112	80	41	44	28	341
Females	38	136	106	58	63	40	441

is an unexplained feature of the disease. The assessed results showed no relation to sex. To category XX, 26% males and 28.5% females were assigned; and to category X, 37.5% males and 30.8% females.

Influence of Age.—Table V shows that 63 of the assessed cases were infants under 12 months, 454 were children aged

TABLE V.—*Age Groups of Assessed Cases*

Age:	Under 1 Year	1–4	5–9	10–15	15+	Total
No. of cases	63	454	244	7	14	782

1–4 years, 244 were 5–9 years, 7 were 10–15 years, and 14 were over 15 years. Table VI suggests that results may be best in the age group 5–9 years, with 34.4% assessed as XX and 36% assessed as X. Results in the 1–4 years group were about average, while those in infants under 12 months were possibly slightly inferior (19% assessed as XX and 35% as X); the number in this group, however, was rather small for comparison. Most observers have concluded that the results of decompression treatment are independent of

TABLE VI.—*Results in Relation to Age*

Assessment	Under 1 Year		1–4		5–9		10–15	15+
	Cases	%	Cases	%	Cases	%	Cases	Cases
XX	12	19	117	25·8	84	34·4	—	2
X	22	35	156	34·1	87	36	2	6
X-	15		85		37		—	2
O and OO ..	14		96		36		5	4
	63		454		244		7	14

age, but there is a suggestion in Table VI that results in babies and adults may not be quite so good as in children aged 1–9 years and especially in those aged 5–9 years.

Second Decompression.—Although the figures are small, Table VII suggests that a second treatment did not often yield good results when the first treatment failed, except,

TABLE VII.—*Results After a Second Decompression Treatment*

Assessment:	XX	X	X-	O and OO	Total
All cases	5	6	8	5	24
First decompression too early	2	2	1	1	6
Net No. of second decompression cases	3	4	7	4	18

perhaps, when the first treatment was given too early (before two and a half weeks of the disease). When the latter subgroup was excluded, a second decompression yielded results only about half as good as the average for all cases.

Results of Other Observers

Treatment of whooping-cough by high flying began in Strasbourg in 1927, when air pilots took children in the paroxysmal stage up to a height of 10,000 feet (3,050 metres). From 1937 to 1939 small-scale trials were carried out in Strasbourg, Switzerland, Germany, Holland, Poland, Spain, Uruguay, Chile, and a very few in England. Not all were favourable. In 1943 open aeroplanes were used in Strasbourg and Switzerland, a dangerous practice which was soon abandoned. Matter (1946) reported on high-flying treatment in 100 patients between the ages of 2 months and 40 years. He concluded that cases over three weeks from onset of the disease profited most, that vomiting stopped in one to two days, appetite returned, sleep improved, and convalescence was shortened.

Baldy and Richou (1946), employing the decompression chamber in Paris, treated 275 children and 21 adults, of whom, however, only 128 were followed up for 21 days. Of the latter group, 22% were reported as practically cured in less than five days, 51% frankly improved, and 4% had paroxysms and vomiting temporarily aggravated. They concluded that the third to fourth week of the disease was the best time for treatment and that repetition of the treatment did not materially increase successes. Contraindications to the treatment were fever, respiratory and cardiac complications, epistaxis and other haemorrhage, acute nasopharyngeal or ear infections, hernia, surgical emphysema, and malnutrition (conditions which I have grouped together generally as the "acutely ill patient").

Lauener and Maeder (1942), in Berne, treated 256 cases by flights to a height of 12,000 ft. (3,660 metres), each lasting one and a half hours. They reported "abrupt cure" after one flight in 57 (22.8%) and slower cure over about eight days in 80 (32%). They also took 24 cases up the Jungfrau to an altitude of 10,000 ft. (3,050 metres) and kept them there three hours with results that were disappointing. There may have been a counteracting effect here of cold and other factors. A trial of low-pressure chamber treatment, however, in 65 cases taken to the equivalent of 14,000 ft. (4,270 metres) yielded "rapid cure" in 31%, "undoubted

improvement" in 50%, no improvement in 16%, and 3% were made worse. Clantour (1946), in Paris, treated 127 cases by high flying with somewhat similar results. Bergquist (1948) treated 45 children in Stockholm—20 by high flying for 45 minutes and 25 in the low-pressure chamber for 45 minutes. On the basis of this very small experience and the very short period of low-pressure treatment he condemned both methods.

Harpoth (1949), in Denmark, compared 101 cases treated by high flying with 59 cases treated by decompression to the equivalent of 3,500 metres (11,500 ft.) for 90 minutes. Other smaller groups were put in the decompression chamber without adequate decompression. The difference in results obtained in the various subgroups of decompression cases was said to be negligible and on this basis he concluded that decompression *per se* had no effect. High flying, however, was thought to be effective. Lalli (1949), of the Italian Air Force, treated 476 cases with three to six flights of 20 to 30 minutes' duration every three or four days for about 15 days. This is quite a different technique from that of most other observers and the very favourable results reported are difficult to assess considering the length of time that must have elapsed from the start of treatment to the date of assessment of the results.

Discussion

The results which I report here conform reasonably well with those of Matter (1946), Baldy and Richou (1946), and Lauener and Maeder (1942), but the number of cases and the duration of the experiment have considerably exceeded those of any other observer. The method of selection of the cases, the chest radiography, the careful recording of paroxysms and vomits just before and a week after treatment, and the conservative assessment of results by two independent observers may be considered favourable points in this investigation. Nevertheless the results reported are largely derived from subjective assessment. The subjective element in the assessment of results of whooping-cough cannot be wholly avoided but it should be limited, if possible, by the use of controls. I have failed, however, to find a way of conducting a controlled investigation and I see no present prospect of achieving this aim.

It would be quite possible to make controls of each alternate batch of patients by running the motor without producing decompression of any significant amount. The patients might thus be deceived into thinking that they had had the treatment. But such deception would be unlikely to remain long undiscovered. The entire absence of ear symptoms in whole batches of patients would almost certainly arouse suspicion. The net effect would probably be to spoil the existing good relationship with patients and doctors and to stop the flow of patients to the clinic. It might also be possible to conduct a controlled experiment in the same way but with the knowledge and consent of doctors and patients. However, the local practitioners when consulted did not favour this suggestion. All hope of a controlled experiment with the present set-up had therefore to be reluctantly abandoned; and this applied also to in-patients, relatively few of whom are suitable for decompression.

The mechanism of action of the treatment has been the subject of much speculation, but is still unexplained. The low pressure of the air breathed seems to be the essential factor, since results seem to be practically similar whether high flying or the decompression chamber is used. The deeper breathing induced may help to clear mucus from the bronchi and perhaps to aerate small collapsed areas in some yet undetermined way. It is conceivable that molecular release of blood gases may be favoured, both because of the lowered pressure of the alveolar air and because of the trend to alkalosis produced by the increased pulmonary ventilation. Blood CO_2 might thus diffuse more freely through alveolar walls and help to expand collapsed alveoli and to loosen exudate in the bronchioles; this in turn could render cough more productive. A study of the composition of the alveolar air combined with estimations of the blood gases, alkali reserve, blood *p*H, blood pressure, and urinary chlorides of patients while in the chamber might throw some light on the mechanism involved. But these matters are still undetermined largely because of the practical difficulties of obtaining the data in out-patients who are nearly all young children.

Leucocyte counts shed no light on the problem. A transfer of oxidase from neutrophils to red cells was observed by Seabra (1947) in men accustomed to flying at high altitudes. Rats which were decompressed for six days exhibited this transfer and resisted infection better than non-decompressed controls. These facts, however, seem to have little bearing on the effect of a *single* decompression.

Credit for the apparent good results has been attributed to psychological factors. Many parents certainly come with high expectations and there is a certain amount of emotion aroused in the patients by the novelty of the treatment. But after the start any excitement present soon evaporates. The children tend to become bored and the younger ones usually drop off to sleep. The mothers were warned against extravagant expectations and told categorically that the treatment had a good effect in some cases but in others had no effect at all. This warning was indeed reflected in the statement of their impressions of the result, some asserting roundly that they could see no difference after the treatment. Psychological factors in this series can, I think, be discounted.

Which cases are likely to be successful and which to be failures? It is clear that the treatment is nearly always useless at a stage of the disease earlier than two and a half weeks, that after the sixth week the percentage of apparent successes is apt to drop, and that the "acutely ill" patient is almost certain to be made worse by decompression. But when the cases are properly selected, I can answer this question no better now than I could five and a half years ago. I look upon decompression as a physical treatment which may exert a favourable influence in some unknown way on the course of the disease in a proportion of carefully selected cases. Such a favourable influence may be partially or completely counteracted by other unfavourable influences, such as "catching a cold" or poor environmental domestic circumstances. Whooping-cough not infrequently pursues an erratic course, exacerbation occurring after periods of improvement. In these circumstances the relative uniformity of the results of decompression treatment reported in the more important papers published on the subject is rather remarkable and may be thought to constitute a prima facie case in its favour.

A decompression clinic for whooping-cough has outstanding advantages beyond the mere question of decompression treatment. When conducted by an experienced physician it acts as a valuable centre of advice for practitioners in their difficult cases, especially those in which pulmonary collapse is found. The running costs are not high when the staff of the hospital is used, but ambulance transport may be a costly item. This has usually to be provided as a routine on grounds of the infectivity of the patient, at least in the first five weeks of the disease.

Summary

A decompression clinic for the treatment of whooping-cough by means of low air-pressures is described and incidental advantages of such a clinic are suggested.

Of 782 carefully selected and assessed cases, 28.2% were reported to show marked rapid improvement in some four to seven days following decompression, and 34.1% to show more gradual but probably significant improvement. The remainder showed no more than the expected change at that stage of the disease, or no improvement at all.

Of the children who were vomiting food more than once daily 57.7% stopped vomiting within a few days after the treatment, and in another 20% vomiting was relieved.

Decompression treatment is usually unsuccessful at a stage of the disease earlier than two and a half weeks and is harmful to the acutely ill case with pyrexia, cyanosis, or appreciable atelectasis.

The results reported are based on careful selection of cases and combined assessment by parents and doctors. An adequate controlled experiment has not yet been done but should be attempted when opportunity offers.

The mechanism of the action of decompression in whooping-cough has not been elucidated. Further trials should preferably include biochemical studies.

I thank my colleague Dr. L. J. M. Laurent for his valuable co-operation throughout, for reporting on a visit to Dr. Richou and others in Paris in 1948, for his part in the conduct of the clinic, and particularly in the assessment of the results.

REFERENCES

Baldy, R., and Richou, M. (1946). *Méd. aéronaut.*, **1**, 512.
Banks, H. S. (1949). *British Medical Journal*, **2**, 226.
Bergquist, E. V. V. (1948). *Nord. Med.*, **39**, 1459.
Clantour, J. (1946). *Méd. aéronaut.*, **1**, 523.
Harpoth, H. (1949). *Nord. Med.*, **41**, 164.
Lalli, G. (1949). *Riv. Med. aeronaut.*, **12**, 237.
Lauener, P., and Maeder, E. (1942). *Schweiz. med. Wschr.*, **72**, 819.
Matter, W. (1946). *Méd. aéronaut.*, **1**, 498.
Seabra, P. (1947). *J. aviat. Med.*, **18**, 289.

CEREBRAL CYSTICERCOSIS

COMMON BUT UNFAMILIAR MANIFESTATIONS

BY

EDWIN R. BICKERSTAFF, M.D., M.R.C.P.

Consultant Neurologist

(From the Midland Centre for Neurosurgery)

Though cerebral infestation with the larval stage of the *Taenia solium* has been recognized since the middle of the last century, it was after the extensive work of MacArthur (1934), Dixon and Smithers (1934), Brailsford (1941), and Dixon and Hargreaves (1944) that cysticercosis was given an important place among the conditions causing epilepsy. So well known is this that the diagnosis is unlikely to escape consideration in a patient suffering convulsions who has lived or served in India or the Far East.

It is the purpose of this paper to emphasize the clinical manifestations of this disease, other than epileptic convulsions, which, though both important and common, have received scant attention in this country. At the same time it will be seen that India and the Far East are not the only, nor even the main, areas where the condition may easily be acquired. Brief illustrative case histories are given, grouped under appropriate subheadings, but, as will be evident, the same patient may show several different features.

Periods of Disordered Behaviour

This group includes a wide variety of abnormal manifestations, unassociated with any true convulsion, but occurring during periods of disturbed consciousness, accompanied sometimes by involuntary micturition, and often consisting of bizarre or violent behaviour.

Case 1.—A Polish male aged 41 was examined on May 28, 1954. Since 1945 he had been subject to frequent attacks of violent behaviour, lasting three to five minutes, accompanied occasionally by involuntary micturition, stopping suddenly, and followed by several hours' deep sleep. The day before examination he had, without warning or provocation, attacked a friend with a chair, resisted the restraint of five men, and then suddenly passed into a deep sleep, having no memory of the incident on waking. Physical examination was negative, but a white blood count showed an eosinophilia of 800 to 950 per c.mm. Skull *x*-ray films were normal, but *x*-ray films of the thigh muscles showed typical calcified cysticerci. The attacks were greatly improved by the use of primidone.

Case 2.—This patient, a Polish boy aged 11, was born in Austria and had lived five years in the Ukraine. Since early 1954 he had been subject to attacks, usually during breakfast, in which he would make grimacing movements of the face for one minute, then sit quite still staring into space for two or three minutes, then repeat several numbers, and suddenly return to normal, though sometimes a little drowsy afterwards and with slight headache. Physical examination on September 17, 1954, was negative, but a white blood count showed a constant eosinophilia of about 1,000 per c.mm. Stools were normal. *X*-ray films of the thighs showed calcified cysticerci.

These probably represent attacks of psychomotor epilepsy, and it is remarkable how infrequently the standard leads of the electroencephalogram are of help in cysticercosis. It is possible that the lesions are situated in areas of the temporal lobes which would require more elaborate techniques to demonstrate.

Transient Loss of Function

The sudden loss of use of, or of sensation in, a limb, or the sudden loss of speech, with subsequent rapid recovery, is not uncommon in the early stages of a cerebral neoplasm and in cerebrovascular disease. Episodes of this type are often seen in cerebral cysticercosis, and have on occasion, in apparently healthy young soldiers, been regarded as hysterical.

Case 3.—A British man aged 20 was admitted to the Queen Elizabeth Hospital, Birmingham, on November 10, 1953, complaining of three episodes, in the previous five years, of sudden loss of use of the left hand, with numbness of the hand, rapidly recovering. One attack lasted several hours. He had in addition, and at separate times, had several episodes of unexplained loss of consciousness. He lived the first ten years of his life in India. Physical examination was negative and a full blood count normal. The cerebrospinal fluid contained two mononuclear and one polymorphonuclear cells per c.mm., with 132 mg. of protein per 100 ml., and a paretic Lange curve. The electroencephalogram showed only very occasional 5–6 c/sec. waves occurring synchronously in all leads. *X*-ray examination of the skull showed a number of small foci of intracerebral calcification, and *x*-ray films of the thigh muscles showed numerous calcified cysticerci.

Case 4.—A British ex-Regular-Army soldier aged 32 who had spent two periods of service in India and China was admitted to the Queen Elizabeth Hospital, Birmingham, on October 23, 1941, complaining of periods of sudden onset of loss of speech during the previous six years, usually lasting several hours, but on one occasion lasting three days. The most recent attack was accompanied by paralysis of the right arm and leg for several hours, recovery being very rapid. In addition, and at separate times, he had had periods of unexplained loss of consciousness, during one of which he had passed urine, and during another had fought off those who had come to his assistance. Physical examination was negative apart from two small subcutaneous nodules in the left arm and the left thigh. A full blood count and *x*-ray examination of the skull were normal, but *x*-ray films of the thigh muscles showed numerous calcified cysticerci. Biopsy showed the subcutaneous nodule from the arm to be a lipoma, but that from the thigh proved to be a cysticercus.

Acute Intermittent Obstructive Hydrocephalus

This, though one of the longest-known non-epileptic manifestations of intracranial cysticercosis, is one of the least well recognized in England. Bruns's symptom-complex (Bruns, 1906) consisted of the sudden onset of violent headache, vomiting, tinnitus, and vertigo, passing on in the more severe attacks to deep coma and even death, and often precipitated by sudden movements of the head. It was considered to be diagnostic of a solitary cysticercus in the fourth ventricle.

*Case 5.**—A Polish woman aged 54 was admitted to the Midland Centre for Neurosurgery on October 1, 1954, having suffered for two years from episodes of sudden onset of severe headache, vomiting, and ataxia, passing on to a stupor lasting 24–48 hours, and recovering spontaneously. She was normal between attacks, but a C.S.F. pleocytosis had been demonstrated elsewhere. Shortly after admission she became rapidly comatose and despite surgical decompression died in a few hours, with signs suggestive of a medullary pressure cone. Necropsy confirmed this, and revealed a solitary cysticercus impacted in the fourth ventricle and numerous cysticerci in the substance of the hemispheres.

The solitary intraventricular cysticercus is, however, not the only cause of acute obstructive hydrocephalus. Some years ago my colleagues and I drew attention in this country to the racemose form of cysticercosis which is particularly apt to form at the base of the brain, and, being a mobile structure, sometimes with a long pedicle, is capable of intermittent blocking of the roof foramina of the fourth ventricle (Bickerstaff *et al.*, 1952).

Case 6.—We described the case of the wife, aged 50, of an ex-Indian Army soldier who for ten years had suffered attacks of headache, each of which increased in severity over several hours, accompanied by vomiting, and culminating in drowsiness and finally coma, but recovering spontaneously within 24 hours. She had had an intermittent blood eosinophilia over many years. Exploration of the posterior fossa revealed a delicate irregular elongated cystic structure, resembling a bunch of grapes, lying over and around the lower brain stem and fourth ventricle and hanging into the upper cervical region. The patient died some weeks after the operation, and necropsy revealed numerous encysted cysticerci in the hemispheres and basal ganglia. Histological examination of the wall of the racemose structure showed it to consist of three distinct cellular layers identical with the lining of the walls of the intracerebral cysts.

Since then I have investigated in the Midland Centre for Neurosurgery two further cases of this type, both Polish and both having attacks of intermittent hydrocephalus. One showed Bruns's symptom-complex, and had a solitary cysticercus in the aqueduct and a racemose structure in the left cerebello-pontine angle; the other had a racemose cysticercus extending from the third ventricle, through the aqueduct and into the fourth ventricle. This contained one large degenerating larva. These cases will be published in full clinical and pathological detail later.

Disturbance of Equilibrium

Though spasmodic ataxia may accompany the attacks of obstructive hydrocephalus, a more progressive disturbance of equilibrium, without marked ataxia of the limbs when supine, frequently accompanies the posterior fossa racemose cysticercosis, the clinical picture simulating that of a tumour of the vermis of the cerebellum.

In Case 6 the patient had in the last four years of her life become increasingly, and finally completely, incapacitated by a gross ataxia of gait, but only in the last few weeks had she demonstrable ataxia on the usual bedside tests.

Of the important series of 13 cases of racemose cysticercosis described by Arana and Asenjo (1945), 7 presented first in this manner.

Meningo-encephalitis

Attacks of meningo-encephalitis, usually self-limiting, the cerebrospinal fluid containing both lymphocytes and polymorphonuclear cells, occur not infrequently throughout the course of the disease (Schmite and Lemoyne, 1932; Dolgopol and Neustaedter, 1935; Felici, 1938; Obrador, 1948).

Our Case 6 had three episodes of headache, with meningism, vomiting, confusion, and drowsiness, lasting several days and clearing up through a period of noisy and aggressive behaviour. Her cerebrospinal fluid was grossly abnormal on each occcasion—for example, 270 cells (90% mononuclear), with a protein of 150 mg. per 100 ml. and a Lange curve of 5433221000.

It is during episodes of this nature that the diagnosis, if suspected, will receive great support from the demonstration by special stains of eosinophils in the cerebrospinal fluid.

One further patient, following surgical intervention with a racemose cysticercus, developed the clinical signs of an intense meningo-encephalitis, the cerebrospinal fluid containing over 1,000 eosinophils per c.mm.

Failing Vision

Cysticerci may lodge in the eye, the orbit, or at the chiasma. Such direct local effects are, however, not always the cause of visual failure, for it may be due to the consecutive optic atrophy which follows long-standing and perhaps unsuspected papilloedema, the site of the lesion being either in the ventricular system or in the posterior fossa.

Case 7.—A 35-year-old ex-Indian Army soldier complained in 1945 of failing vision over the previous two years. He had a past history of fits, and examination revealed a chronic papilloedema which had progressed to a consecutive atrophy. His cerebrospinal fluid contained 33 mononuclear cells, 92 mg. of protein per 100 ml., and a paretic Lange curve. *X*-ray films of the muscles showed numerous calcified cysticerci, and an air encephalogram showed dilatation of the third ventricle, and forward displacement of the fourth ventricle. It is probable that there was a racemose cysticercus in the posterior fossa, but proof was not obtained.

Case 6 also had severe consecutive atrophy of the optic disks, with gross loss of vision, following long-standing raised intracranial pressure. Necropsy confirmed that there were no cysts in relation to the eyes or chiasma.

Involuntary Movements

Very rarely, cysts in the basal nuclei, or secondary degenerative changes in this region, may be associated with involuntary movements. Meyer (1906) described tremor of the right side; Felici (1938) described Parkinsonism, and Broughton-Alcock *et al.* (1928) and others refer to involuntary movements.

Our Case 6, for the last four years of her life, showed at first a constant restlessness which, as it increased, developed into frank bilateral choreic movements of considerable amplitude, affecting all four limbs and the face, and with the associated mental impairment the clinical picture resembled Huntington's chorea. At necropsy a large cysticercus was found in the left caudate nucleus, and seven smaller cysts in both the caudate and the lentiform nuclei.

Mental Disturbances

Personal experience of this aspect has been limited to the development of mental deterioration in patients predominantly displaying other manifestations of the disease. Stepien and Chorobski (1949) and Pinto Pupo *et al.* (1945–6) stress mental disturbance as a presenting symptom, as did MacArthur (1934).

In the present series, Case 1 was showing increasing agressiveness, irritability, and unreliability of behaviour quite apart from his psychomotor attacks, and Case 6 for several years had had memory impairment, irritability, and mood swings, and her hospital investigations were hampered by a series of self-discharges.

One further Polish patient has recently been seen, presenting a purely psychotic state, but having scattered flecks of intracranial calcification, and a high blood eosinophilia. Cysticercosis was suspected, but so far has not been proved.

Discussion

The incidence of human cysticercosis is of course related to the amount and mode of pork consumption in a given area rather than to any local variant of the *Taenia solium*. Inhabitants of a country in which pork is often consumed in a raw or partially cooked state are constantly exposed to the danger of contracting a tapeworm, and any carrier of

*This case will be published in full clinical and pathological detail elsewhere.

an intestinal tapeworm is a potential danger to himself and others. Any fault in personal cleanliness may cause contamination of food with ova, and subsequent development of cysticercosis in the consumer's muscles or brain. It must be remembered that it is not eating measly pork which results in human cysticercosis, but the ingestion of tapeworm ova as a result of contamination of food by human faeces—a danger over which any given individual has much less control.

The number of cases found in Army personnel returning from India has fostered the view in this country that India is the most likely area where infestation may occur. Cases have, however, been reported from a great number of countries, and a good review of the geographical incidence is given by Trelles and Lazarte (1941). The ease which now attends world travel, and the great movements of populations during the war and the post-war period, have resulted, and will continue to result, in the natives of many countries making their homes in Great Britain. There are thought to be about 600,000 natives of Poland, the Ukraine, and neighbouring countries living in this country at the present time and coming under our medical care. When one considers that in Warsaw, at the Neurological Institute, between 1926 and 1936, cerebral cysticercosis formed 1.25% of *all* admissions—1 in 80 patients (Stepien and Chorobski, 1949)—it would be surprising if among such a community one did not encounter many examples.

Southern Italy and Portugal provide a number of cases, and it was at one time very much more common in Germany than it is now. Surprisingly few have come from the north of Africa and Egypt, but Dixon and Smithers (1934) recorded several from South Africa. It is very uncommon in the United States, but in South America, on the other hand, some of the most extensive work on the subject has been carried out—notably the detailed review and description of 26 new cases from Brazil by Pinto Pupo *et al.* (1945–6) and the monograph by Trelles and Lazarte (1941) of Peru. It is common in Colombia; and in Chile cerebral cysticercosis formed 12½% of all suspected cases of cerebral tumour during a two-and-a-half year period (Arana and Asenjo, 1945).

The pathology of the intracerebral encysted cysticercus is well known, but in this country insufficient attention has been paid to the effects of the infestation of the cerebrovascular system. Post-mortem examinations have shown a constant periarteritis and endarteritis in both the meningeal and the smaller cerebral vessels, particularly in the vicinity of the cysts. These vascular changes may be most important in the production of transient or permanent ischaemic lesions in the brain. The sudden attacks of loss of function of a limb or of speech lasting several hours and then recovering seem more likely to be due to transient ischaemia than to be epileptic manifestations. Again, the cerebral atrophy which may develop is probably secondary to long-standing vascular insufficiency, and the mental changes and some of the degenerative basal ganglia lesions may well be of similar origin. The late clinical picture in some patients is that of a crippling hemiplegia, and it is more probable that this is due to occlusion of a major vessel than to the mere presence of cortical or subcortical cysts.

It is in South America that the major work of recent years has been carried out in connexion with cysticercosis of the posterior fossa—the solitary intraventricular cyst, the racemose variety, and the basal meningo-encephalitis. A given patient may have one of these types, or any combination of the three, and each is capable of giving a clinical picture resembling a posterior fossa tumour with increased intracranial pressure—the first by blocking cerebrospinal fluid flow through the ventricular system, the second and third by obstructing the roof foramina of the fourth ventricle.

It is important to recognize the solitary intraventricular cyst, because its successful removal will relieve the patient of his symptoms referable to C.S.F. obstruction. This has often been done—for example, Arana and Asenjo (1945)—and, even if removal is impossible, Torkildsen's procedure may give considerable relief.

Basal meningo-encephalitis is a more serious condition, as the consequence of recurrent attacks is a chronic arachnoiditis around the base of the brain, which can cause permanent interference with C.S.F. circulation and also with blood flow within the basilar system. Relief of this surgically is rarely possible, and, though short-circuiting operations may give temporary relief, the prognosis is bad. It is interesting that during this stage eosinophils may be found in the C.S.F. if special stains are used, and it is possible that it represents an allergic response to some allergen liberated from the parasite rather than a direct result of irritation. Some support was gained for this view by a recent experience of treating such a case with antihistamines, with rapid improvement in pyrexia, the general condition of the patient, and the C.S.F. reaction.

The so-called racemose cysticercus is an elongated saclike structure, varying greatly in size, having a central cavity from which grow many cystic projections, each having a delicate translucent wall, and the whole, though occasionally lying free in the ventricles, usually being lightly attached to the basal meninges by a long pedicle. The structure so formed resembles a bunch of grapes, and by virtue of its mobility is capable of causing intermittent C.S.F. obstruction and interference with vascular supply to the brain stem and cerebellum. The wall is histologically the same as the lining membrane of the intracerebral cysts, but the structure usually contains no hooklets or scolices.

We suggested previously (Bickerstaff *et al.*, 1952) that this structure was a reaction of the meninges to the presence of a parasite, and that its particular type of development was due to the constant flow of C.S.F. and the space allowed by the cisterns for expansion; we also thought that this received support from the fact that the other site of development was in the cavity of the lateral ventricles. As stated earlier, however, a larva was discovered in one of these racemose structures, and I now feel that they represent an actual cysticercus about which there has failed to form the host tissue reaction which completes the encirclement of the better-known intracerebral cysts, thus limiting their growth.

A similar racemose structure is formed by the larval stage of the dog tapeworm *Multiceps multiceps*, but in this case it is a coenurus and not a cysticercus which is formed—that is, a cyst containing numerous invaginated scolices, as opposed to the single scolex of a cysticercus. When a racemose body is formed in cerebral coenuriasis, several hundred scolices may be discovered (Johnstone and Jones, 1950; Becker and Jacobson, 1951). This difference in the number of scolices in the two parasites is important, for while several score of scolices may die in a coenurus and still many remain, the death of the single scolex in a cysticercus will result in a sterile cyst. Trelles *et al.* (1952) believe that death of the parasite disturbs a balance existing between it and the cyst wall, and disorderly proliferation follows, forming this remarkable racemose structure.

The diagnosis of these posterior fossa forms of cysticercosis is of more than just academic interest, for here there is offered a practical chance of alleviating symptoms by surgical means, which in the other forms of cerebral cysticercosis have been disappointing. Diagnosis will be made only if the possibility is always at the back of one's mind when faced by intermittent obstructive hydrocephalus, and in the differential diagnosis of posterior fossa lesions—for the confirmatory signs of cysticercosis (calcification in muscles or brain and eosinophilia in blood or C.S.F.) may all be absent. The possibility must assume greater prominence when the patient comes from, or has been in, one of the areas where the condition is frequently acquired, and attempts should then be made to obtain confirmatory evidence.

It should be remembered (*a*) that calcification in the brain is much less common than in the muscles of thighs

or pelvis; (*b*) that blood eosinophilia is often intermittent, and may be absent on any particular examination; and (*c*) that a pleocytosis in the cerebrospinal fluid may not only show eosinophils, if a suitable stain is used, but is often associated with a paretic Lange curve.

Finally recourse must be made to ventriculography, using air or opaque contrast media, which may not only define the site of the obstruction but also outline the shape and size of the cysts responsible, and give valuable information about the possibility of surgical removal.

Summary

Attention is drawn to clinical manifestations other than epileptic convulsions which frequently occur in cerebral cysticercosis, and to the countries other than India where infestation is often acquired.

Cases are described illustrating periods of disordered behaviour, transient pareses, intermittent obstructive hydrocephalus, dysequilibrium, meningo-encephalitis, involuntary movements, failing vision, and mental disturbances.

Stress is laid on the cerebrovascular lesions, and on the importance of the posterior fossa forms of the disease.

I wish to thank the medical staff of the Polish General Hospital, Penley, for referring to me Cases 1, 2, and 5; to Professor P. C. Cloake for permitting me to investigate Case 3; to Professor W. H. Wynn for allowing me to include Case 4; and to Sir Russell Brain for permission to use brief extracts from *Brain* (Case 6).

REFERENCES

Arana, R., and Asenjo, A. (1945). *J. Neurosurg.*, **2**, 181.
Becker, B. J. P., and Jacobson, S. (1951). *Lancet*, **2**, 1202.
Bickerstaff, E. R., Cloake, P. C. P., Hughes, B., and Smith, W. T. (1952). *Brain*, **75**, 1.
Brailsford, J. F. (1941). *Brit. J. Radiol.*, **14**, 79.
Broughton-Alcock, W., Stevenson, W. E., and Worster-Drought, C. (1928). *British Medical Journal*, **2**, 980.
Bruns, L. (1906). *Neurol. Zbl.*, **25**, 540.
Dixon, H. B. F., and Smithers, D. W. (1934). *J. roy. Army med. Cps.* **62**, 426.
—— and Hargreaves, W. H. (1944). *Quart. J. Med.*, **37**, 107.
Dolgopol, V. B., and Neustaedter, M. (1935). *Arch. Neurol. Psychiat. (Chicago)*, **33**, 132.
Felici, M. (1938). *Riv. sper. Freniat.*, **62**, 301.
Johnstone, H. G., and Jones, O. W. (1950). *Amer. J. trop. Med.*, **30**, 431.
MacArthur, W. P. (1934). *J. roy. Army med. Cps*, **62**, 241.
Meyer, E. (1906). *Dtsch. med. Wschr.*, **32**, 483.
Obrador, S. (1948). *Arch. Neurol. Psychiat. (Chicago)*, **59**, 457.
Pinto Pupo, P., Cardoso, W., dos Reis, J. B., and da Silva C. P. (1945-6). *Arch. Serv. Psicop. (S. Paulo)*, **10-11**, 3.
Schmite, P., and Lemoyne, M. (1932). *Rev. neurol.*, **2**, 538.
Stepien, L., and Chorobski, J. (1949). *Arch. Neurol. Psychiat. (Chicago)*, **61**, 499.
Trelles, J. O., and Lazarte, J. A. (1941). *La Cisticercosis Cerebral*. La Prensa, Lima, Peru.
—— Rocca, E., and Ravens, R. (1952). *Rev. Neuro-psiquiat.*, **15**, 1.

"The whole emphasis to-day is on drawing as little difference as possible between the handicapped child and the normal child," said Mr. DENNIS VOSPER, Parliamentary Secretary to the Ministry of Education, at a conference of the College of Teachers of the Blind at Matlock on April 22. Between 1945 and the end of 1954, he said, 256 new special schools, with 18,000 new places, had been established, but there were still considerable waiting-lists, and careful selection was essential. Only when ordinary day-school education had proved impossible was special training considered. Teaching handicapped children was onerous, and it reflected credit on the profession that there had been sufficient teachers coming forward to fill the posts in the new schools. A few handicapped children would never become self-supporting, continued Mr. Vosper, "but education will help to make them all better members of the family circle, and to make the majority more likely to take their place as worthy and self-supporting citizens in the world."

SPONTANEOUS HAEMOPNEUMOTHORAX

A SURGICAL EMERGENCY

BY

A. J. CLYNE, C.B.E., M.B., F.R.C.S.
Colonel, Royal Army Medical Corps

AND

F. H. D. HUTTER, M.B., F.R.C.S.
Wing Commander, Royal Air Force

Spontaneous haemopneumothorax is a comparatively rare condition. A review by Borrie (1953) showed the recorded total to be 93 cases with 19 deaths. Subsequently McGown (1954) has reported another case. The source of bleeding and air escape is usually a ruptured bulla with or without a torn adhesion. Sometimes a torn adhesion alone is found; sometimes there is no demonstrable lesion, which means that the breach in the lung surface, from which so much blood and air escapes, is either so small as to be missed or has already healed so far as naked-eye examination can detect. Although the precipitating factor is apparently traumatic, a history of trauma, beyond ordinary everyday activity, is usually absent, the causal episode being so mild in type as to be overlooked. The important features, for both prognosis and management, are not so much the cause and source of the bleeding as its extent, the tendency to clot earlier than in ordinary traumatic haemothorax, and the fate and subsequent effects of this clot if it remains in the pleural cavity.

The traditional method of management in medical wards, on the principle of minimum interference, has carried in the past a high mortality. In 18 fatal cases death followed conservative treatment. In the remaining case (Hansen, 1949) the patient died after delayed thoracotomy. Conservative treatment, the difficulties of which are well put in Hartzell's (1942) paper, has been challenged by several writers. Myers *et al.* (1951) recommended emergency thoracotomy if bleeding could not be controlled, and reported a successful case. Ross (1952) regards the condition as a surgical emergency, requiring urgent blood replacement and early evacuation of the intrapleural blood before it clots. This he did by underwater intercostal drainage, recommending thoracotomy if there were evidence that bleeding was continuing. He reported six cases, one of which required emergency thoracotomy, the remainder being treated by aspiration or drainage, but of these only two gained full re-expansion this way, the remainder requiring decortication. Borrie (1953) recommends immediate thoracotomy, after resuscitation, as the treatment of choice for all cases of spontaneous haemopneumothorax in which bleeding has been considerable, and he regards the condition as an acute thoracic emergency. He reports three cases—two treated by emergency thoracotomy for uncontrolled bleeding with complete success and early full expansion, and the third requiring decortication after failure to obtain re-expansion by repeated aspiration.

The object of treatment is to resuscitate the patient and replace blood loss, to arrest the bleeding and to prevent its recurrence, to remove all air, blood, and clot from the pleural cavity, and to obtain and maintain full lung expansion, so that there is a return to full normal function in a minimum of time.

Case 1

An aircraftman of the Royal Australian Air Force, aged 28, was admitted to the British Military Hospital, Singapore, in the evening of May 3, 1954, with an eight-hour history of severe epigastric pain of fairly sudden onset. There was no history of trauma, although he had played golf some hours before. He complained of severe pain radiating from a point just below the xiphisternum, up behind the sternum, and in both directions across the epigastrium. It was worse during inspiration. He was collapsed and shocked, with a pulse of 110 and a blood pressure of 115/85. The provisional diagnosis had been perforated peptic ulcer, and he was admitted to the acute surgical ward, where examination revealed an extensive left pleural effusion with an overlying pneumothorax. Exploratory needling showed the fluid to be blood. Blood transfusion was started and thoracentesis performed. Approximately two pints (1,140 ml.) of blood was aspirated from the pleural cavity, at the end of which there was clinical evidence, confirmed by *x*-ray examination, that at least a pint (570 ml.) of blood remained, but this would not come out through the cannula and had presumably clotted. Two pints of blood was given intravenously, by which time he had recovered from his acute respiratory distress and shock.

The patient was first seen by one of us (A. J. C.) on the morning of May 4. It was obvious that blood loss had been considerable and was possibly still occurring. It was equally obvious that there was an extensive intrapleural clot which, unless removed, would prevent lung re-expansion and require pulmonary decortication at a later date. Emergency thoracotomy was performed 22 hours after the onset of symptoms. A further three pints (1,700 ml.) of blood was given during and after operation. A careful search of the lung and of the parietal and mediastinal pleura failed to reveal any source of bleeding. There was no evidence of lung disease, nor were there any adhesions. The only departure from normal seen was a small haemorrhagic patch, about ¼ in. (1.3 cm.) in diameter, immediately beneath the pleura on the upper part of the lower lobe. The pleura here was intact. Adherent fibrin clot had already covered most of the collapsed lung, and approximately two pints (1,140 ml.) of blood, mostly clotted, occupied the pleural cavity. After removing all clot the lung was fully re-expanded and the chest closed without drainage. Convalescence was uneventful, full lung expansion being maintained. He was returned to his unit after four weeks.

Case 2

An officer of the Royal Air Force, aged 32, was admitted to the R.A.F. Hospital, Changi, on May 13, 1954, with a history of pain in the left lower chest of six hours' duration, starting as a slight pain, but becoming increasingly severe during the night. It was intensified by inspiration and by movement. There was no history of any traumatic incident. He was admitted to a medical ward and found on examination to have a left pneumothorax.

X-ray examination confirmed a large left pneumothorax and showed a small amount of fluid. By the next day his condition had deteriorated, with pallor, sweating, and dyspnoea, and severe left-sided chest pain. *X*-ray films showed an increase in the pneumothorax and a rise in the fluid level. Thoracentesis was performed and the fluid found to be blood, of which 100 ml. was withdrawn. Then 600 ml. of air was also aspirated, after which his general condition improved. He was kept well sedated and put on penicillin.

On May 15 his general condition was unchanged, but there was a considerable rise in the fluid level. 15 oz. (425 ml.) of blood was aspirated and more air withdrawn. Blood haemoglobin was 11.5 g. per 100 ml. On the next two days 6 oz. (170 ml.) and 12 oz. (340 ml.) of blood was aspirated, but *x*-ray examination showed, from a maintained high fluid level, that bleeding was continuing.

On May 18 there was no improvement, and the patient was seen in consultation by Lieutenant-Colonel W. G. Macfie, senior physician at the British Military Hospital, Singapore, who, following the recent experience with Case 1, recommended immediate blood replacement, followed by thoracotomy. The blood haemoglobin had fallen by now to 8 g. per 100 ml. Three pints (1,700 ml.) of blood was given overnight, and a thoracotomy was performed (F. H. D. H.), on May 19. Four pints (2,300 ml.) of blood and clot was removed from the pleural cavity, extensive clotting having occurred, although fibrin deposition on the lung was not a feature in this case. No actual bleeding point was found, but there were several torn adhesions, one of which, at the apex, appeared to have been bleeding recently. After removal of all clot the chest was closed with an intercostal underwater drain. Three more pints (1,700 ml.) of blood was given during and after operation.

Post-operative progress was uneventful, with progressive lung re-expansion. By June 1 full re-expansion had occurred, the drainage-tube was removed, and the patient, now allowed up most of the day, was returned to a medical ward. Repeated attempts to find any focus of tuberculosis were negative.

Case 3

A British lance-corporal aged 19 was admitted to No. 33 General Hospital, Hong Kong, on July 2, 1954, with a history of the sudden onset of a stabbing pain in the left lower chest on the previous day. This was worse on inspiration, was intensified by any form of movement, and had been gradually increasing in severity. There was a past history of occasional attacks of pain of pleuritic type, one such attack having lasted as long as two weeks. He was admitted to a medical ward.

Examination showed a pale shocked young man, with panting shallow respirations and obviously in severe pain. The blood pressure was 100/60 and the pulse rate 120. Chest examination revealed the trachea deviated to the right, with the left upper zone tympanitic and the lower zone flat dull. No breath sounds were heard on the left side. The right lung appeared to be normal. Exploratory aspiration showed that the fluid was blood and that the overlying pneumothorax was under some tension. A diagnosis of spontaneous haemopneumothorax was made.

The patient was given 100 mg. of pethidine, which was repeated at six-hourly intervals, blood and air were aspirated from the left pleural cavity, and he was started on penicillin. He was blood-grouped and cross-matched, but not transfused. We are indebted to Lieutenant D. Benazon, medical officer in charge of the patient, for the following progress report.

"He rapidly improved with pethidine and further improved when one pint (570 ml.) of blood was removed at once, and again later in the day. The pulse returned to normal and the blood pressure was 125/70. The haemoglobin next day was 58%. His pulse was taken half-hourly, and then one-hourly, and frequent blood-pressure recordings were made. Aspiration of blood was continued; at no time did it clot, and thus practically every drop could be removed over the next 14 days. It became increasingly serous, though at the start it was pure blood. The lung is now (August 13) almost completely re-expanded, and in about another week should be fully out to the chest wall. There is minimal thickening at the left costophrenic angle. Movement is good on the affected side, and breath sounds, except at the apex posteriorly where there is still a tiny pneumothorax, are as good as on the other side. The patient is feeling very well. The haemoglobin, which fell to 58%, is now back to normal with ferrous sulphate therapy. He was given plenty of breathing exercise after about 10 days, by which time it was hoped the ruptured vessels would have healed. He was covered during the first 10 days with penicillin while chest manipulations were going on and infection of the atelectatic lung was a risk.

Air continued to be troublesome, and I think has taken longer to remove than it should have done, because of the inefficient artificial-pneumothorax apparatus. We were fortunate that there was no recurrence, or perhaps at most only a slight recurrence, of bleeding. If this had occurred again I think transfusion and surgical treatment would have been needed."

Full re-expansion occurred during the following 10 days, and he returned to his unit for duty.

Comment

Although at the time unaware of Borrie's (1953) paper, we had already, from experience with traumatic haemothorax and penetrating chest wounds, appreciated the need for early exploration of the chest if there is evidence of continuing intrathoracic bleeding or if clotting has occurred. It is a life-saving procedure, and is essential if the lung is ever fully to expand again without later decortication.

In this respect the three cases reported make an interesting comparison. Case 1 was admitted initially to a surgical ward, where, on general surgical principles, the need for early exploration was appreciated. He was operated on within 24 hours, had full lung re-expansion from the time of operation, and was up fully convalescent within two weeks. Case 2 was admitted to a medical ward and treated expectantly on conventional lines for six days, during which he continued to bleed and to deteriorate progressively. Although after operation he never looked back, the delay lengthened the time required for full lung re-expansion and convalescence generally. Case 3 was treated by the traditional medical methods, surgery at no time being even considered. This case can be regarded as a successful result of conservative treatment, giving no cause for anxiety after the first few days. Nevertheless, full lung re-expansion took seven weeks. We feel that it was the layer of fibrin coating his pulmonary pleura rather than the defective aspirating syringe which was the real cause of difficulty in removing air from the pleural cavity.

We are in full agreement with Borrie that spontaneous haemopneumothorax is a surgical emergency demanding thoracotomy whenever bleeding is serious. We would go further and recommend emergency thoracotomy, after resuscitation, as the treatment of choice for all cases. At this stage it is a straightforward surgical procedure which, provided anaesthetic and surgical facilities are adequate, carries very little risk and permits direct access to the bleeding point, evacuation of all clot and air, and immediate lung re-expansion. Reluctance to operate has led to a high mortality, with a chest disability in survivors which at best results in slow convalescence with probably some permanent pleural thickening, while less fortunate cases will require the major procedure of pulmonary decortication to correct a crippling chest condition. In at least one case in five, spontaneous arrest of bleeding does not seem to occur, and these cases have contributed most of the fatalities in the past. In the remainder the chances of evacuating all blood and exudate before the occurrence of clotting or fibrin deposition sufficient to prevent ultimate full expansion appear to be less than even. It is important to remember that after initial resuscitation the patient, a healthy young adult, is fitter for surgery than he is likely to be for a long time if operation is delayed, and that the real risk in these cases lies not in operating but in not operating.

Summary

Three cases of spontaneous haemopneumothorax are reported, two of which were treated by emergency thoracotomy.

The condition should be regarded as an acute thoracic surgical emergency for which immediate thoracotomy is indicated.

We are indebted to Brigadier Douglas Bluett, Director of Medical Services, Far East Land Forces, for permission to report Cases 1 and 3 and to Air Commodore G. P. O'Connell, Principal Medical Officer, Far East Air Force, for permission to report Case 2.

References

Borrie, J. (1953). *British Medical Journal*, **2**, 16.
Hansen, J. L. (1949). *Acta med. scand.*, **132**, 517.
Hartzell, H. C. (1942). *Ann. intern. Med.*, **17**, 496.
McGown, F. M. (1954). *Proc. roy. Soc. Med.*, **47**, 255.
Myers, R. T., Johnston, F. R., and Bradshaw, H. A. (1951). *Ann. Surg.*, **133**, 413.
Ross, C. A. (1952). *J. thorac. Surg.*, **23**, 582.

ULCERATIVE COLITIS TREATED BY TOTAL COLECTOMY AND ILEO-RECTAL ANASTOMOSIS

BY

STANLEY AYLETT, F.R.C.S.

Surgeon to the Westminster Hospital Teaching Group (Gordon Hospital) and to the Metropolitan Hospital

In a preliminary communication (Aylett, 1953) I described an operation of ileo-rectal anastomosis with colectomy as a possible treatment of cases suffering from diffuse ulcerative colitis. The reasons for suggesting that it was possible to retain the rectum, thus avoiding a permanent ileostomy with its aesthetic and practical disadvantages, were detailed. In a further communication (Aylett, 1954) the types of cases in which the operation was indicated and in which ileo-rectal anastomosis could be achieved were described. Briefly, the operation can be carried out in all cases of ulcerative colitis in which surgery is indicated, with the exception of those in which the rectum has already been irretrievably damaged by gross fibrosis or by perirectal suppuration and fistula formation. The presence of pseudopolypi is not a contraindication for its performance.

The purpose of this short paper is to indicate certain modifications of surgical technique that experience has indicated to be desirable and to record the progress of the patients upon whom the operation has been carried out.

Modifications of Technique

Although in the first few cases the ileum was anastomosed to the rectum in its upper third the establishment of a safety-valve opening in the left iliac fossa necessitated the retention of the lowermost portion of the pelvic colon. This severely diseased portion of the large intestine may be included in the excision if the rectum is mobilized as an initial stage in the operation by division of the upper part of its lateral ligaments and of its posterior attachments. After the ileo-rectal anastomosis has been carried out the colectomy is completed by transecting the rectum through its upper part about 2 cm. above this anastomosis. It is then possible, as a result of the mobilization of the rectum, to exteriorize its open upper end through the lowermost part of the paramedian incision to act as a safety valve. The reasons for considering that such a safety valve minimizes the danger of a breakdown of the line of anastomosis, made as it is through a diseased rectal wall, have also been described previously. Moreover, this proctostomy tends to undergo spontaneous closure more readily than a colostomy in the left iliac fossa, so that the necessity for its closure by operation is required less often.

The large majority of patients are now operated upon in one stage, and in only one of the last 10 has an anastomosis and total colectomy not been effected in one operation. In this very gravely ill acute case the colon was excised and an ileostomy established as an initial stage of treatment, the upper end of the rectum being exteriorized

and restoration of continuity being delayed until the patient had been restored to good health. It is essential in the fulminating case, the case with uncontrollable haemorrhage, or the desperately ill patient to remove the colon as the first stage in operative procedure, leaving the patient with a temporary ileostomy. Subsequently the anastomosis between ileum and rectum is undertaken.

Results of Operation

The results are summarized in the accompanying table. There was no mortality in the series.

In a further two cases not included in the table the caecum seemed at operation to be so little diseased that in each it was retained and the anastomosis was effected between it and the rectum. One of these patients has remained perfectly well over a period of 18 months, and her bowels are opened only twice in each 24 hours. The other case remained well for four months and then suffered a severe and uncontrollable haemorrhage. Operation was undertaken for this and the caecum was found to be acutely inflamed. It was resected, continuity of the bowel being re-established by an anastomosis between the terminal ileum and the rectum. On opening the caecum subsequently the whole of its mucosal lining was seen to be ulcerated and the site of multiple points of haemorrhage. The patient ultimately died. It would appear, therefore, that unless the caecum is absolutely normal no attempt should be made to retain it.

Summary of Results

Case No.	Age and Sex	Duration of Disease	Reason for Operation	Weight Before Operation	Date of Operation	Weight Dec., 1954	No. of Bowel Actions Dec., 1954		General Remarks	Result
							Day	Night		
1	30 F	12 years	Uncontrollable haemorrhage	st. lb. kg. 6 5 40·4	14/3/52	st. lb. kg. 7 11 49·4	6–7	1–2	Working normally as housewife. Developed intestinal obstruction, July, 1954. Post-operative recovery satisfactory. Prior to this episode bowels open 4–5 times in 24 hours	Good
2	44 M	7 ,,	Chronic ill-health. Diarrhoea, with blood and mucopus	10 10 68	6/6/52	10 9 67·6	8–9	2–3	Majority of bowel actions occur after breakfast and supper. Patient works in heavy steel industry	Satisfactory (not classed as good on account of number of bowel actions)
3	10 F	2 ,,	Acute exacerbation with gross toxaemia	3 6 21·8	3/10/52	4 2 26·3	6	Slight faecal incontinence	Frail and physique poor	Fair
4	37 F	10 ,,	Chronic ill-health. Anaemia; diarrhoea with blood and mucopus	8 50·8	10/10/52	9 11 62·1	6–7	1–2	Back to normal work as Civil Servant	Good
5	30 M	3 weeks	Fulminating type with perforation of colon	9 5 59·4	20/11/52	12 76·2	6	0	In excellent health. Previously professional footballer, is now on administrative side	,,
6	29 F	1½ years	Severe toxaemia and subacute obstruction due to pericolic abscess	7 13 50·3	1/12/52	9 12 62·6	5–6	0–1	Working normally as housewife with one child	,,
7	29 M	9 ,,	Patient treated by ileostomy in 1949 elsewhere	13 82·6	30/1/53	13 82·6	5–6	0	Working normally as electrician	,,
8	40 F	11 ,,	Chronic ill-health. Severe diarrhoea, 14 times each 24 hours, with blood and mucopus	9 3 58·5	5/12/53	11 69·9	5–6	1	Working normally as housewife with two children	,,
9	31 M	5 ,,	Chronic ill-health. Severe diarrhoea, 16 times each 24 hours, with blood and mucopus	9 7 60·3	11/1/54	11 69·9	5	3	Back to full work as motor mechanic	,,
10	45 F	14 ,,	Chronic ill-health. Severe diarrhoea, 20 times each 24 hours, with blood and mucopus	7 44·5	1/2/54	7 8 48·1	4–5	1	Patient back to work as clerk	,,
11	20 F	6 months	Severe toxaemia—acute case	8 2 51·7	22/2/54	9 57·2	5–6	2	Back to normal work in city. Travels 50 miles by train each day	,,
12	38 F	2 years	Chronic ill-health. Severe diarrhoea, 20 times each 24 hours, with blood and mucopus	6 6 40·8	1/3/54	7 8 48·1	4–5	4	Back to work as shop assistant. Feels "wonderful"	Satisfactory (not classified as good on account of number of bowel actions)
13	30 F	10 ,,	Chronic ill-health. Anaemia; diarrhoea with blood and mucopus	7 7 47·6	26/7/54	8 10 55·3	6–7	3	In excellent health. Bowels have not yet completely settled down	,, ,,
14	49 M	9 ,,	Chronic ill-health and diarrhoea	10 2 64·4	17/9/54	10 5 65·8	5–6	0–1	Back to work as driver's mate	Good
15	43 M	2 ,,	Chronic ill-health. Diarrhoea, with blood and mucopus	9 8 60·8	11/10/54	10 7 66·7	5	3	Now convalescing	,,
16	51 M	2 ,,	Chronic ill-health and development of carcinoma in transverse colon	10 10 68	25/10/54	10 7 66·7	3	1	,, ,,	,,
17	26 F	3 months	Acute case progressing to fulminating state with peritonitis	5 12 37·2	19/7/54 (total colectomy, ileostomy, and proctostomy). 22/11/54 (ileorectal anastomosis)	7 44·5	6	4	Almost *in extremis* before operation. Bowels have not yet settled down after the anastomosis. Feels fit and well	,,

Comment

The satisfactory progress of all but one of these severely and sometimes desperately ill patients, and their return to good health and to full work, seem to indicate that the method of treatment described is a satisfactory one. The follow-up is admittedly a short one and the series is not large. Nevertheless in no case has the disease flared up in the remaining rectum, and regular proctoscopic examination has shown that resolution of the inflammatory changes existing before the operation has taken place.

Addendum.—Since this article was compiled six other cases have been operated upon. Of these, two have returned to good health and three are convalescing. The sixth patient died during the fourth post-operative week following a burst abdomen. Of the patients reported on in the table, Nos. 11, 13, and 17 now have only one to two bowel actions at night.

REFERENCES

Aylett, S. O. (1953). *British Medical Journal*, 2, 1348.
—— (1954). *Surgery of the Caecum and Colon*. Livingstone, Edinburgh and London.

ANXIETY NEUROSIS: TREATMENT BY THE GENERAL PRACTITIONER*

BY

RONALD A. B. RORIE, M.D., D.P.M.

Foundation Member of the College of General Practitioners; Assistant Psychiatrist, Eastern Regional Hospital Board (Scotland)

Between the world wars attention was drawn to the fact that a large proportion of chronic sickness was due to the neuroses. Gillespie (1933), while on the subject of psychotherapy in general practice, mentions the fact that, of 600 cases referred to a special clinic, 436 were diagnosed as neuroses. Halliday (1935) found that psychoneuroses accounted for as much as 30% of the sickness of insured persons in Glasgow, and there is no reason to think that this proportion has since diminished. These figures are borne out by the report of the British Medical Association (1941).

The family doctor, while he has unique opportunities for studying the factors that bear on a case, through lack of training has not the knowledge, and too often not the inclination, to attempt to deal with the obviously neurotic patient. At out-patient clinics one often hears the story that "my doctor says it is just nerves, and gives me phenobarbitone."

The palpitations, choking sensations, and innumerable phobias of the anxiety neurotic are all too real to the sufferer, and can incapacitate him totally for work. The man cannot face the bus journey to work, and, once there, has to leave the crowded workshop because of intense feelings of apprehension. The woman is unable to leave home to shop unaccompanied, and cannot attend church or go to the cinema. In face of the exhortations of the family and friends to "pull themselves together," these patients rapidly lose heart; fears of insanity follow, with suicidal impulses which may have fatal consequences.

During the last decade the general practitioner has become aware that a large part of his time is taken up by patients suffering from psychoneuroses. The coming of the National Health Service Act, leading as it has to a reduction in the time available per patient, has tended to make it difficult for the practitioner to do more than pass the case on to the specialist, with the result that only a small minority, and only the most patent cases, get treatment at all. The majority, of lesser degree, struggle along unhappily, treated by sedative. A recent analysis of prescriptions issued by practitioners under the National Health Service Act shows that the commonest by far is for sedative (Dunlop *et al.*, 1952).

Before the second world war the neurotic could expect to be treated in one of two ways. By the older school, in whom there persisted a moral disapproval of anyone suffering from a neurosis, he would be dismissed as lacking in moral fibre or as malingering. By the inter-war generations, who, while admitting the existence of an illness in such cases, could do little through lack of training, he would be given sedatives and allowed to drift.

I qualified in 1938 and do not remember ever being shown an anxiety neurosis as such during my training in mental diseases. From contact with colleagues during the war, I found that this did not simply reflect on my medical school as compared with others.

The tendency persists to diagnose neurosis in a negative manner, by exclusion of organic disorder, rather than in a positive recognition of the various neurotic syndromes. This leads to much waste of time and effort on the part of other specialists. It is as though one was afraid to admit that the complaint was functional. In practice even to-day, if a diagnosis of neurosis is made, it is necessary to explain that it implies no derogation or criticism of the patient. Even so, many patients feel insulted by such a diagnosis.

In spite of the community's increasing interest in mental illness, as shown by Press, popular fiction, theatre, and cinema, there still persists the Victorian disapproval of a subject which lays such emphasis on the emotional aspect of man's life. It is partly this disapproval which discourages general practitioners from facing and attempting to treat the vast number of minor neuroses they meet every day.

In this paper an attempt is made to describe the treatment of the commonest of the neuroses—the anxiety neurosis—from the general practitioner's point of view.

The Physician's Reaction

It is obvious that if the general practitioner refuses, consciously or otherwise, to face and treat the neurotic, and depends on the specialist, the vast majority of cases will go untreated.

When he is confronted with the anxiety neurotic, what is the physician's reaction? The complaints are indefinite but insistent; a physical examination is negative; a placebo, usually in the form of phenobarbitone, is prescribed, the only psychotherapy being a word of encouragement. If a diagnosis is requested, too often a hint of an organic condition is given—"a nervous stomach," "a tired heart," "overwork," etc. The patient is unrelieved, and on persistence is referred to one specialty after another, with negative findings. The psychiatrist is often the last consultant called in.

Two factors contribute to this maltreatment of the neurotic. The first is lack of time for proper history-taking and evaluation of the symptoms. Ross (1937), discussing the treatment of such cases, states that at least an hour should be set aside for the initial examination. It is a reflection on the conditions of service under the National Health Service Act that few general practitioners could find this easy to-day. The second factor is the blind spot

*From a thesis submitted to the University of St. Andrews for the degree of Doctor of Medicine.

that so many practitioners retain for neurotic symptoms. One hears of the busy family doctor who proudly states that he never sees a neurosis.

Choice of Case

Before attempting treatment of an established anxiety neurosis it is necessary to decide whether the case is one that can be dealt with by the general practitioner or one for immediate referral to the specialist. Several factors bear on this decision.

The age of the patient is one such factor. With increasing age the personality becomes more rigid, and is less open to suggestion and persuasion than in the younger years. Rarely is a neurosis of recent onset encountered at this time, and the symptoms are usually complicated by involutional changes.

A certain degree of intelligence is necessary in the patient for any psychotherapy beyond suggestion and persuasion. As one proceeds to explanation of symptoms and discussion of possible causation a higher intelligence is required, and if anything of a psycho-analytical nature is attempted a higher than average intellect is essential. In an average working-class practice few patients are encountered who could benefit from such advanced treatment.

The nature of the illness itself may decide whether it should be handled by the general practitioner or by the specialist. The illnesses of long duration call for expert handling if more than temporary relief is aimed at. Patients with an apparently stable previous personality may be handled by the non-specialist, while personalities showing any marked degree of deviation from the normal should be avoided.

Probable aetiological factors should be considered before deciding to treat an anxiety neurotic. Deep-seated constitutional abnormalities such as homosexuality, if they are the basis of anxiety reactions, should be referred for specialist treatment. The general practitioner can handle with ease the anxieties resulting from sexual malpractice, domestic stress of all kinds, and marital difficulties. The illnesses resulting from war stress are probably within the specialist's sphere, as they are now of more than five years' duration, and the majority have received some form of treatment in the past and are likely to prove chronic.

A further point to be decided in the treatment of the neurotic is the ultimate aim of the treatment. This has been described as "to cure sometimes, relieve often, and comfort always." Some personalities have been anxious for a lifetime, and it is over-optimistic to promise them more than relief. The obsessional personality cannot be changed to a happy carefree nature. Similarly with the constitutional deviations, relief of the disabling anxiety symptoms should be the aim; whether or not the invert can be readjusted to a normal pattern of sexual behaviour is debatable; some authorities are optimistic (Allen, 1940), but Curran (1938, 1947) is of the opinion that few are desirous of cure. The latter states that the aim of treatment should be to make the congenital homosexual a better-adjusted homosexual.

Prophylaxis

The treatment of the anxiety neuroses is both prophylactic and curative, and the general practitioner's role is important in both. In aetiology, the main factors are found to be emotional stress of various kinds in the sexual, social, domestic, and other spheres, and also the stress of war service. While the stresses themselves can rarely be modified or avoided, with the exception of the last, which can be avoided by psychiatric examination on enlistment, the personal reaction to them can be modified by education and instruction.

Any general practitioner of experience knows the immense amount of ignorance that exists among patients of all classes, not only of sexual matters but of all matters affecting their general health. The effects of this ignorance are often aggravated by false enlightenment from parents, Press, and well-meaning religious instructors. This is often the starting-point of needless anxiety and doubts about health. The family physician has unique opportunities of preventing this ignorance. In childhood he can modify the overemphasis on health impressed by anxiety-ridden parents. He should do his utmost to prevent the unnecessary branding of a child as "delicate." Many a child is forbidden to take part in games and recreation because of some doubtful illness in earlier years. As time passes it becomes more and more difficult to remove this belief that he is not as strong as his playmates.

Careless talk by the practitioner in front of the young patient is very easy. It should be remembered that many an intelligent child in the early 'teens has just as much interest in its illness as the parents have, and is quick to pick up vague suggestions of "a scarred heart valve" or "a spot on the lung." Reassurance should be given in a simple manner by the doctor and not be left to the anxious parent. The handling of proved organic disorders requires fine judgment of the restrictions necessary: Menninger (1945) describes the way in which overemphasis on rest can lay the foundations of neurotic reaction, and states: "The treatment by rest originated with Weir Mitchell, but, according to modern psychiatry, is entirely false in theory and unsound in practice. It aggravates fears of disease and does not cure neuroses."

In adolescence and early adult life every opportunity should be taken to dispel ignorance and resulting worry about normal sexual manifestations such as masturbation and nocturnal emissions in males and menstruation in females. One still encounters surprising superstitions on these subjects, passed on from parent to child.

Similarly when it comes to marriage, the young couple, even of the educated classes, embark on this phase of life in a discouraging state of ignorance. Few ask spontaneously for advice, and the family physician could prevent an immense amount of unhappiness and anxiety by asking the engaged couple what they know, and correcting any misapprehensions. Marriage guidance clinics are still very few, and until these are developed the role of adviser must fall on the general practitioner.

In a discussion of the treatment of the neuroses in general practice, Guirdham (1947) points out the common errors of approach, the danger of excessive physical investigation, and states his belief that "80% of married couples below the level of the petit bourgeoisie use coitus interruptus as a means of contraception." He states that "there is more to be gained in correcting patients' views on these matters than there is in studies of Freudian symbolism." From experience in general practice I am in complete agreement with both these statements.

In practice it is very easy to follow inquiries about the family with a question on what the couple are doing to prevent further additions. When these matters are brought up patients are usually very willing to discuss them, but hesitate to do so spontaneously. As Culpin (1935), however, points out, some doctors are temperamentally unable to talk about details of sex life, and simply turn a blind eye to it.

Mace (1947) discusses the problem of marriage guidance, emphasizing the importance of the general practitioner in the treatment of sexual disorders and his lack of training in such matters.

In these fields the general practitioner has great scope for the prevention of anxiety reactions. Little can be done to prevent interpersonality tension, which is the result of modern social conditions, but he can do much to prevent its development into an established anxiety neurosis.

Treatment

Psychotherapy alone can produce lasting benefit in an established neurosis. In the first place this need be only of a superficial nature, and is quite within the scope of the general practitioner. The best approach is a simple

explanation of the bodily symptoms. The familiar elements of the emotion of fear should be pointed out, with its dryness of the mouth, palpitations, nausea, tremors, weakness of the knees, headache, etc. The effects of over-attention to bodily functions should be illustrated by the difficulties in swallowing pills consciously, and breathing consciously, as compared with the ease with which these functions are carried out when the attention is diverted. The reality of emotional "lumps in the throat," "heartaches," "headaches," "butterflies in the stomach," etc., should be pointed out.

When this is accepted the next step is to explain how this emotional dysfunction has come about. Occasionally a patient will volunteer immediately where the emotional stress lies, but it is perhaps easier to give instances of the common factors in interpersonality stresses within the family, sexual stresses in adolescence, courtship, marriage, etc. Stress of work is often proffered as a cause, but it is usually found that the stress lies not in work itself but in emotional relationship between the sufferer and his fellow workers. One does not work with one's emotions.

Admission of such factors need not be insisted on, but if the patient is allowed to go home and think things over he often returns and admits them spontaneously. I used this type of discussion on one patient, but failed to get any response. Finally homosexuality was mentioned—one naturally does not begin with this suggestion—and, although strongly denied at the time, the patient returned several weeks later to admit that this was the prime cause of his anxiety.

As psychotherapy proceeds the technique varies according to the individual case. The lower intelligence group require more persuasion and suggestion to help them regain their confidence. The higher intelligence group may be allowed to talk themselves out of their troubles : any subject with a strong emotional tone should be encouraged, and the patient should be urged to face the reality of his feelings towards his environment.

Every patient wants reassurance that his symptoms are not those of insanity. Many are afraid to ask this question. The differentiation must be quite clear and definite. Confirmation that efforts of will alone are ineffectual in cure is essential. It is often necessary also to point out that in neurotic illness there is nothing to justify shame. Many sufferers are pathetically relieved to find someone who does not describe his complaints as imaginary.

After such simple discussion and reassurance many patients admit spontaneously that they feel better for days afterwards.

In the general handling of the anxiety neurosis the environmental stresses must not be neglected. These may be modified to some degree. The relatives of the patient must be interviewed and instructed concerning their correct attitude to the sufferer. It should be explained to them that the symptoms are real, and that well-meaning advice on their part may only serve to increase the patient's tension. Holidays are often suggested, but these help only if they lead to a removal of aggravating factors. A claustrophobic will feel better after a holiday in the country, but his symptoms will reappear when he returns to his previous environment. When anxiety symptoms are the result of an unsatisfactory sexual relationship, intramarital or extramarital, there will be temporary improvement during separation. In unsatisfactory marriage relationships, either physical or temperamental, both parties must be interviewed and the difficulties discussed.

While the somatic symptoms of anxiety can be expected to abate with such reassurance and discussion, the mental symptoms need special attention. The degree of depression requires careful assessment, as in any depression there is always some risk of suicide. The practitioner need not fear asking the patient if any such ideas are present. They are commonly admitted. What is the best course here? It should be realized that the only effective safeguard against such attempts is certification, but very few neurotics are certifiable. The relatives should be informed that a certain risk is present, even though small; they would be advised to maintain a certain supervision over the patient, and so far as possible he should not be left for long periods alone. This usually leads to difficulties in the working-class home, as it is not easy to find a relative who can spare the time to supervise the invalid. When sedatives are prescribed they should not be given in excessive quantities. It must be remembered, of course, that any patient can hoard small quantities. In cases of doubt sedatives should be given only to relatives who can be responsible for their administration.

An attempt at suicide, however half-hearted, should be an indication for admission to hospital. Many of these potential suicides would be willing to enter a general hospital, but such hospitals are loath to accept mental cases, and the suggestion of admission to a mental hospital, though theoretically correct, leads to a grave exacerbation of anxiety. Suitable neurosis centres with in-patient facilities are still few and far between. Unfortunately on recovery the uncertifiable patient is returned home and if the neurosis is untreated the danger of further attempts remains.

Of the other mental symptoms the handling of the phobia presents some difficulty. The patient realizes that his fears are unjustified and fights continually against them. This fight should not be encouraged. The fears will diminish gradually with psychotherapy, and until they do the best course is to advise the patient to avoid, so far as possible, circumstances that induce them. As discussed below, sedatives can be used during this stage. Sometimes during treatment the phobia becomes attached to some comparatively non-disabling object, which can be avoided with ease.

Medical Treatment

There is no doubt that the temptation to dispose of a neurosis by prescribing sedatives is great, but in reality they play a very small part in treatment from a curative point of view.

Insomnia must be treated initially by hypnotics. Of these, phenobarbitone, though by far the most popular amongst general practitioners, is not the most useful. Neurotic insomnia usually takes the form of difficulty in falling asleep, and phenobarbitone is a slowly acting sedative. Barbitone sodium in doses of 5–10 gr. (325–650 mg.) is more useful; butobarbitone and cyclobarbitone are also useful quick-acting hypnotics. Phenobarbitone has its place in easing general tension by day in doses of ½–2 gr. (32–130 mg.).

In the treatment of anxiety symptoms amylobarbitone sodium deserves special mention. In general practice it can be given by mouth both in diagnosis and as treatment. The use of small doses of amylobarbitone sodium in diagnosis is worthy of note : 1 gr. (65 mg.) is not enough to relieve anything but emotional stress. It is the most efficacious drug for relieving anxiety, both generalized and phobic. The patient can go to church or the cinema, or undertake journeys that would otherwise be impossible or extremely uncomfortable. The student can attend classes in comparative ease.

Sedatives play an essential part in the treatment of panic states. Here the patient is quite inaccessible to psychotherapy, and the only course open is prolonged sedation with amylobarbitone sodium, intramuscularly or intravenously, combined if necessary with paraldehyde. Sargant and Slater (1944) describe the various uses of these drugs in detail.

Relaxation

In all cases both mental and physical tension may be greatly relieved by instruction in methods of relaxation. A suitable form of relaxation exercise is one devised by Dick Read (1943). Many of the more intelligent patients benefit from this : muscular tension is reduced and a calm

state of mind induced which often leads to sleep. A summary of instructions to be given to the patient is reproduced below. That this falls within the general practitioner's realm is emphasized by the fact that these exercises are taken from a work on the management of pregnancy, being used to reduce muscular and mental tension in childbirth.

Position.—The patient should lie on the back on a wide couch or fairly hard bed with a small bolster under the head and shoulders, and a smaller pillow or cushion under the knees; arms by the side, elbows half bent, hands half closed, knees slightly separated—that is, all joints so far as possible in semiflexion. Relaxation is obtained as follows: (1) shoulders, by thinking of them "opening outwards"; (2) arms, by imagining them falling out of the shoulder-girdle "as though they did not belong to you"; (3) back—sinking through couch on to the floor; (4) legs, knees, and feet—falling outwards by their own weight; (5) head—making a dent in the pillow; (6) eyelids—half closing by their own weight; (7) face—as though hanging from the cheek-bones; (8) jaw—hanging loose. Give about two minutes to each group, and take them in the same order each time.

Breathing.—Let the chest wall collapse with its own weight on expiration, and pause for two seconds (or until the need for a new breath) at the end of expiration. Get a feeling of general relaxation, letting all the joints give a little more with each outgoing breath. This should be done six times. Note the train of sensation in the limbs—usually heaviness followed by lightness or "floating"; faint, transient pins-and-needles in the hands; feeling of warmth passing up from the extremities. A pleasant, torpid, day-dreaming state generally ensues (as in sunbathing), and any tendency to direct thinking should be deliberately diverted into a day-dream.

Duration.—Half to one hour (the sense of the passage of time is often lost or blunted).

Exercises for the Neurasthenic

Exercises of a different nature are to be recommended for the "neurasthenic" type of anxiety neurosis. Many of these patients believe themselves so incapacitated that they take to bed. Graduated physical exercise is required in such cases. It should be clearly explained to the patient that he must not expect to leave bed and feel absolutely fit. Hill and Dewar (1945), in a survey of effort syndrome, mention that graduated exercise is easily arranged in the armed Services, but in civilian practice such procedures are not possible. However, it is sufficient to get the patient to take gradually increasing daily walks, starting with a few hundred yards, and increasing slowly until he finds himself walking several miles without any discomfort.

It is customary to advise special diets and other measures to improve the general health in all neuroses. In domiciliary practice under present-day conditions this is extremely difficult, but it is important to keep in mind the possibility of avitaminosis. In case of doubt it is advisable to administer vitamins, especially those of the B complex, as psychotherapy proceeds.

It might be objected that the practitioner to-day does not have time to carry out the above treatment. Watts and Watts (1952) give a very good reply to this, showing that the time involved is no more than that necessary for the conduction of midwifery practice. As a result of experience in general practice and in out-patient psychotherapeutic clinics I find that, in suitable cases, six interviews of half an hour each suffice to relieve the sufferer of disabling symptoms.

Hospital Treatment

The treatment so far described is that within the scope of the general practitioner. What symptoms raise the question of admission to hospital?

In the first place, depression of suicidal degree makes it necessary for this to be considered. If home supervision is adequate it is possible to treat the case there, but in the average middle- and working-class home it is difficult to find a responsible relative who can spare the time for constant watch on the patient. The depressed anxiety neurotic living alone can cause more concern to the practitioner than the flagrant psychotic. The latter can be certified with little difficulty, whereas it is often impossible in the case of the former.

A second group that often require admission to hospital are the cases of extreme agitation. The patient is restless, tearful, and wears out herself, her relatives, and her medical adviser with her demands.

Thirdly, admission to hospital may be necessary in the treatment of the anxiety neurosis with symptoms of anorexia, with or without vomiting. Such symptoms can eventually endanger the life of even a young and physically healthy girl.

Lastly, the phobias can restrict the patient's activities to such an extent that he is unable to undertake out-patient treatment even if he were willing. Cases can be recalled in which the sufferer was completely confined to his house by panics which overwhelmed him at every endeavour to leave.

In all these cases the choice lies between admission to a psychiatric unit of a general hospital or to a mental hospital. In either case admission should be on a voluntary basis; but it rarely happens, in cases which cannot be supervised at home, that the sufferer can endanger his or her life and, being uncooperative, make certification unavoidable.

Out-patient psychiatric clinics have been developing rapidly during the past five years, commonly associated with a general hospital. These help in the diagnosis and treatment of early psychiatric illness. In chronic deep-seated anxiety neuroses, prolonged specialist psychotherapy is often required, lasting several months or even years.

Of the various methods of psychotherapy there is no end. From a continuation of superficial explanation, reassurance, and discussion, methods vary through free association, modified analysis, to full analytical methods. As stated previously, the scope for the latter is very small indeed. The growing numbers of cases referred for treatment have now led to a development of group methods of therapy, in which the patients are instructed as a group in the nature of their troubles, and are encouraged to work their way out of them in the group, by various means.

Various abreactive techniques can be carried out on an out-patient basis, using hypnosis, intravenous barbiturates, ether, carbon dioxide, and other aids. These methods were of particular use in the treatment of traumatic war neuroses; the patient is encouraged to work off his previously repressed emotions.

Out-patient electric convulsion therapy, although primarily of use in the treatment of psychotic depressions, has a place in the treatment of anxiety neuroses. It is almost essential in the case of the depressed suicidal neurotic. Although it may increase agitation while it is being applied, the effect is to lessen the depression and to relieve insomnia, and often an increase in appetite and physical well-being is achieved.

In-patient treatment for neuroses still presents great difficulty. The fear of the neurotic that he might be sent to a mental hospital is quite understandable; in practice a relatively small proportion enter such a hospital on a voluntary basis, and they rarely stay long enough to benefit. While a large percentage of neurotic cases are admitted to general wards, they are discharged as soon as such a diagnosis is made. Few hospitals for purely neurotic patients exist. In hospital, further treatment is available for the anxiety neuroses. Modified insulin therapy can be applied to selected cases. It is specially indicated in the agitated and physically debilitated case. Anxiety can lead to profound loss of weight, and this can be replaced rapidly by the use of insulin in dosage sufficient to induce varying degrees of hypoglycaemia. It also acts as a sedative, and psychotherapy can be carried out concurrently.

Continuous narcosis is of use in the case of the acute anxiety state, and is possible only in hospital. The patient is kept continuously under the influence of hypnotics for a period of a week or more, being roused only for nourishment.

which is given in the form of fluids. This method is of little use in the case of the chronic anxiety state, the patient usually returning to his previous broodings on his health when sedation is stopped.

Conclusion

When the above methods have failed, one is tempted to consider the problem of leucotomy for the sufferer from chronic anxiety. The place of this treatment in the case of the neurotic is still a matter of argument. Although spectacular successes have been reported (Sargant and Stewart, 1947), the result must always be unpredictable. While anxiety is usually relieved and intelligence is rarely impaired, the effects of treatment cannot be undone. The result of the operation might be a bigger social problem than the original illness.

There is a very strong case for a small psychiatric unit in all general hospitals, to provide the above out-patient and in-patient treatments, without the "stigma" of visiting a mental hospital, which deters so many sufferers from seeking help.

My thanks are due to Dr. J. D. Uytman, consultant psychiatrist, Dundee Royal Infirmary, for his suggestions on "relaxation exercises," and to William Heinemann, Ltd., for permission to reproduce the extract from *Revelation of Childbirth*, by G. Dick Read.

REFERENCES

Allen, C. (1940). *The Sexual Perversions and Abnormalities*, p. 182. London.
British Medical Association (1941). *Report of Committee on Mental Health*. London.
Culpin, M. (1935). *Lancet*, **1**, 1277.
Curran, D. (1938). *Practitioner*, **141**, 287.
—— (1947). Ibid., **158**, 348.
Dunlop, D. M., Henderson, T. L., and Inch, R. S. (1952). *British Medical Journal*, **1**, 292.
Gillespie, R. D. (1933). *Lancet*, **1**, 1.
Guirdham, A. (1947). *Practitioner*, **159**, 470.
Halliday, J. L. (1935). *British Medical Journal, Supplement*, **1**, 85, 99.
Hill, I. G. W., and Dewar, H. A. (1945). *Lancet*, **2**, 161.
Mace, D. R. (1947). *Practitioner*, **158**, 272.
Menninger, K. A. (1945). *Bull. Menninger Clin.*, **9**, 162.
Read, G. D. (1943). *Revelation of Childbirth*. p. 166. London.
Ross, T. A. (1937). *The Common Neuroses*, p. 67. London.
Sargant, W., and Slater, E. (1944). *An Introduction to Physical Methods of Treatment in Psychiatry*. Edinburgh.
—— and Stewart, C. M. (1947). *British Medical Journal*, **2**, 866.
Watts, C. A. H., and Watts, B. M. (1952). *Psychiatry in General Practice*, p. 5. London.

THE NEURASTHENIC PSYCHOPATH

BY

W. L. TONGE, M.D., D.P.M.

Deputy Medical Superintendent, Cheadle Royal Hospital for Mental Diseases, Cheshire

Full social participation is now commonly regarded not only as a sign of health but as an essential for its achievement. Interest is therefore aroused by those who do not participate in the activity, basic to our society, of work. The findings of a survey and follow-up of a group of psychiatrically disabled men, both employed and unemployed, have previously been reported (Markowe *et al.*, 1955). In the course of the investigation some of the subjects with long-term unemployment asked for psychiatric help, and 28 of these attended a special clinic for twelve months. The present paper offers a discussion of the clinical patterns of these patients.

Clinical Report

In every diagnostic clinic it is often difficult to draw a formal distinction between the illness and the personality from which it springs. The syndromes presented by these patients can be seen in any psychiatric clinic; in the earlier report also it was noted that employed and unemployed subjects had similar symptoms. Twenty patients complained of neurotic symptoms, of which excessive tiredness, backache and headache, hypochondriasis, and a varying mood of anxiousness or mild depression were predominant. Plainly hysterical symptoms and signs were observed in only three patients, but physical symptoms of anxiety were found rather more often. Three patients had major epileptic fits, three were defective, two suffered from involutional depression complicated by organic disease, one developed a mixed depressive psychosis, one was a chronic schizophrenic, and one developed a reactive paranoid state.

These summary diagnostic labels fail to explain the interest provoked by these patients, for they provided a clinical experience of disorders and anomalies of personality not easily gained in out-patient departments, and they afforded a more precise description of the term "inadequate psychopath." The following case history is illustrative.

A man aged 39 when first seen had had neurotic symptoms in his childhood, but did not admit to a family history of psychiatric illness. He served as a regular soldier before the war, but was invalided in 1941. He had several unskilled jobs on leaving the Army, but for the past four or five years had been almost consistently out of work, holding one job for about a month every year or so. He married in 1939 and had one son, but his wife refused to leave her mother to live with him. He was contemplating divorce proceedings when his wife sued him for desertion. He denied any other sexual activity. He lived on his own in lodgings, cooking his own meals, and had no friends. His weekly income from all sources was 69s., of which he paid 25s. for his room and 10s. maintenance for his son. He complained of attacks of anxiety, palpitations, depressions, and dizzy spells since his marriage. He was apathetic and resigned in mood. There were no physical abnormalities. In spite of his poverty he could not get work, although opportunities for employment were excellent in that area. He attempted to get in touch again with his parents: an aunt told him they had removed, but apparently he could not discover their new address.

The ineffectiveness these patients displayed in all aspects of life was also apparent on interview. They waited upon the words of their interlocutor, and rarely ventured to put forward what they wanted in life or what they would like to do. Although some might fairly be described as retarded in speech, they varied in their verbal facility; but when the interview touched on topics which, it might be supposed, would awaken their self-interest, their talk became vague. Their complaints and dissatisfactions, their present difficulties or previous happiness, their hopes and fears for the future, whatever was in question, would arouse no definite affect or point of view which could be seized upon and discussed. A striking feature was their tolerance of the worst conditions and their seeming inability not only to obtain satisfactions but even to desire them. In the case just cited the patient had given up his family and son and had no friends; with the money at his disposal he lived virtually in penury, and must at times have gone hungry. His symptoms were by no means severe, yet he was unable to earn even that little money which he would have found so helpful. With all these troubles he was only vaguely distressed. The lack of a serious disturbance of mood and the long-standing nature of his condition made it unlikely that he was suffering from a chronic depression. None of the basic signs of schizophrenia were present, nor was he cold and unfeeling; on the contrary, he maintained quite a strong affective rapport with the doctor in a dependent and pathetic way.

This lack of drive was well shown by another patient who later developed a reactive paranoid state. He managed to hold a job for a few weeks, and when asked on what he spent his money he replied that he was "putting it by." On being pressed further, he said it was to buy clothes. He neither smoked, drank, nor went to any entertainments, and had no friends of either sex. On giving up his job he forfeited the help of the National Assistance Board and went to live with an uncle, who kept him in the bare essentials of life only.

Apart from defectives, who might be expected to show some degree of inadequacy, this type of personality anomaly was observed in 18 of the remaining 25 patients in varying degrees of severity.

Other types of psychopathy were also observed. Two patients could be classed as contentious and emotionally unstable. One, a qualified laboratory technician, became aggressive and abusive whenever attempts were made to find work for him. He complained that the clinic misrepresented him to prospective employers and prevented their engaging him. He claimed to have many influential friends, but nevertheless he was living in the poorest circumstances. He alleged that a high-level inquiry had been made by the Ministry of Labour into the handling of his employment problems, which had disclosed "inefficiency and muddle all around." The other patient, no less aggressive and paranoid, attempted to borrow £50 at the first interview. At times he showed a hypomanic pressure of talk. While these patients resembled the inadequate personalities in their poor work record and history of failure, yet they were by no means ineffectual in the part they had chosen of acting out a pathological sense of grievance against official bodies.

Another patient, neither inadequate nor querulous, was yet emotionally immature, while the patients with involutional illnesses and schizophrenia had the personalities characteristic of those conditions.

Treatment and Outcome

It is hardly surprising that in face of such difficulties these patients failed to improve their adaptation as judged by their work record during the time they attended the clinic (Markowe *et al.*, 1955). The progress of some individual cases is, however, worth discussing.

One patient with an involutional depression complicated by pernicious anaemia was admitted to hospital. Adequate treatment of the anaemia and rest in hospital, without further physical treatment, restored a normal mental state, and this patient is now working. Supportive psychotherapy, while available to all patients, was in particular successful in the case of the patient who was emotionally immature. He had found work for himself, but was crippled by heavy debts. With the encouragement of the clinic he succeeded in satisfying a court order and made good progress in straightening out his affairs. A patient who had reached retiring age was settled happily in an old people's home, and a place was found for one of the defectives in an occupation centre. Although this could not be counted as rehabilitation, it represented a much more satisfactory disposal than their previous way of life.

When patients were successfully placed in jobs, this was almost always done by the local disablement resettlement officers, but there were some problems which could not be solved through the good offices of the employment exchanges. One patient, an undischarged bankrupt, was by temperament more fitted to work on his own account. He had trained himself as a french-polisher, and by borrowing money from various sources it was found possible to set him up in business again.

For many patients, however, with the gross deficits of personality already described, treatment was unrewarding. Attempts to place them in suitable employment failed, as their ineffectiveness could not long be hidden from their employers. Vacancies in Remploy were too scarce to be of practical value, but one patient was accepted by an industrial rehabilitation unit. Physical treatments were inappropriate and supportive psychotherapy was without effect. In three instances, where patients presented particularly difficult problems of adjustment, arrangements were made for their admission to the Social Rehabilitation Unit at Belmont Hospital under the care of Dr. Maxwell Jones, in the hope that vigorous social therapy would be more effective than out-patient treatment. The remainder, on the other hand, provided ample opportunities for welfare work. Those without friends were encouraged to join a social club for out-patients. In spite of National Assistance, there were some who lacked clothing and other necessaries, and these patients were grateful for being put in touch with charitable organizations which could relieve their needs.

At the end of twelve months four patients had either recovered or were much improved and were back at work. Four others showed symptomatic improvement. In three cases the improvement in health preceded the return to work, in four it followed a return to work or the taking up of an occupation. Relief of financial anxiety, the feeling of again being useful, and occupation in itself were reasons given by these patients for their later improvement. One patient received symptomatic relief from sedatives without any improvement in his work record.

Two patients deteriorated while attending the clinic. One, having developed a mixed depressive psychosis with marked hysterical features soon after his first attendance, was admitted to a mental hospital. The other was an extremely inadequate man who was advised to attend out-patient occupational therapy. After some weeks his behaviour at the occupational therapy centre became disturbed, and he felt that the staff were against him. Later he believed he heard the voice of a neighbour talking about him: she knew all the details of his life and was in touch with the occupational therapy centre. He ceased attending the centre and resumed his solitary existence with his uncle. His delusions still remain, but he does not act upon them, and remains an isolated and eccentric figure.

Comment

In spite of the serious unemployment two decades ago, there are surprisingly few clinical reports of the psychiatric disturbances of the unemployed. Lewis (1935) reported on 52 such patients and found a uniform clinical picture in which hysteria was predominant. In the present series the predominant symptomatology may fairly be described as "neurasthenia." This change in the form of neurotic illness is now a commonplace observation; Mayer-Gross *et al.* (1954) attribute it in part to changing fashions in diagnosis, but Lewis noted gross hysterical phenomena in 23 of his 52 patients, which is to be compared with only 3 out of 28 patients in the present follow-up study. It is possible that the increasing sophistication and self-respect which has accompanied a rising standing of living tends to inhibit the cruder forms of hysterical response: it is of interest that Kalinowski (1950), in his review of psychiatry in the last war, comments that gross hysterical conditions, so common in the first world war, were reported as frequent only in the Yugoslav partisans.

Although the symptoms were plainly neurotic, the gross anomalies of personality suggested the possibility of more serious psychotic disorders, in particular mild chronic endogenous depression or simple schizophrenia. In almost all cases this could be discounted. Except for the one case of declared schizophrenia, thought disorder was entirely lacking and good rapport was obtained. Secondary symptoms were absent, except for the patient who developed paranoid delusions, but this could more accurately be described as a reactive paranoid state, the basic signs of schizophrenia being lacking. Similarly, the cardinal features of depressive psychosis were absent in all except the patient admitted to a mental hospital; one other patient who had lost weight and was slightly retarded was also suspected of suffering from a mild depression. Signs of an organic dementia were not found in any patient. In almost all cases, therefore, a supporting diagnosis of constitutional personality disorder had to be made.

The term "inadequate personality" has come to be widely used, and is now included in the *International Classification of Diseases*. Published descriptions of this condition are not, however, entirely applicable to the cases here described. Henderson (1939) notes that such patients "may show a condition approaching apathy, but it is not so much an apathy as a self-centredness which takes no thought of others, and has for its aim the individual's self-gratification and glorification." Mayer-Gross *et al.* (1954) describe the "unstable drifter" (*Haltlosigkeit*) in similar terms: "His immediate wishes, affections, or disgruntlements rule him completely, and he is indifferent about the future and never

considers the past." These are descriptions of the typical psychopath, unable to steer a steady course, seduced by each passing temptation, and certainly apply to two patients in the present series. No doubt this type of behaviour also occurs in the remaining patients to some extent, but the heart of the matter lies elsewhere. Their characteristic and common feature is lack of drive; the pattern of repeated failure is to be seen as due, not to lack of control, but to a profound enfeeblement.

Janet's (1903) words are more apt: "Presque toutes ces personnes présentent quelquefois depuis leur première enfance un caractère bien reconnaissable: ce sont des mous, des indolents, des paresseux." Janet distinguished his concept of psychasthenia, with obsession and rumination, from neurasthenia: "Certains malades sont très abouliques, ne peuvent plus faire attention et présentent de l'amnésie continue . . . chez ceux-la les troubles de l'obsession sont peu à redouter." He writes of mental sickness in a context where the term personality disorder is now preferred, but the point to be made is that the ineffectiveness of the patients here described is closer to the older concept of neurasthenia than to that of psychopathy, as now generally understood. Schneider, too, included asthenia in his list of psychopathies.

It is hardly surprising that this type of personality disorder has not caught the attention of writers to the same extent as the more troublesome unstable psychopath: it is of their nature to pass unnoticed. When, however, there is a strong social pressure to work, as in the present period of full employment or in times of war, their disability becomes apparent. The clinical impression of these patients upon me could be compared only with my experience of Army psychiatry, and in both instances patients were often referred for administrative reasons. In discussing the effort syndrome Lewis and Jones (1941) pointed out that symptoms were of little consequence in a man's decision to soldier on; more important was his attitude to military service. This is patently the same problem of adjustment as is presented by the present unemployed.

If, as I am inclined to believe, it is this type of personality disorder which forms the core of the disabled unemployed and not the "unstable drifter," the question of treatment remains. In the Army, group techniques tended to be developed (Foulkes, 1948; Maxwell Jones, 1952), which have since been continued by the Social Rehabilitation Unit at Belmont Hospital. Promising results are claimed—44% satisfactory adjustment on follow-up (Maxwell Jones, 1952)—in patients for whom the criterion for admission was social failure; but it is uncertain whether this outcome applies equally to the type of patient here discussed. By the showing of the present clinic, out-patient attendance alone is not sufficient to improve their level of adjustment. Rehabilitation may even be ill-advised for some patients at particular stages of their illness. Attempts to break down the defensive social isolation were found intolerable by the patient quoted above, who developed a reactive paranoid state when he was exposed to the stimulation of an occupational therapy centre.

The discussion of the differential diagnosis should perhaps have included the lay interpretation of laziness, as a description not of behaviour (as with Janet) but of motive. Nothing could be farther from the truth. The economic sanction of withdrawal of National Assistance benefit did not change the adjustment of the patient concerned, and, even if by these harsh means some were induced to re-enter employment, there is some evidence that they do not become productive workers (Markowe *et al.*, 1955).

When such conditions occur in wealthy men they are regarded as amusing eccentrics, like Goncharov's Oblomov; in poorer men, however, our society takes a sterner view. The possibility remains that, like Oblomov, these unhappy people can be neither treated nor coerced into becoming more productive citizens, but remain a charge on the kindly employer or the welfare services, even requiring the more able to search them out, for they are as ineffectual in seeking help as in all other things.

Summary

Attention is drawn to a type of personality disorder which was observed in patients attending a clinic for unemployed psychiatrically disabled men. This disorder is characterized by absence of drive and irresolution rather than by emotional instability as in other forms of psychopathy.

The response to out-patient treatment both in occupational adjustment and in mental health was unrewarding.

It is considered that, although these patients may not often be suitable for rehabilitation, they are almost always in great need of social welfare services.

I wish to thank Professor A. J. Lewis, honorary director of the unit, for his advice and stimulating criticisms, and Dr. M. Markowe and Dr. G. M. Carstairs for making available to me observations on patients under their care.

REFERENCES

Foulkes, S. H. (1948). *Introduction to Group Analytic Psychotherapy.* London.
Henderson, D. K. (1939). *Psychopathic States.* London.
Janet, P. (1903). *Les Obsessions et la Psychasthénie,* pp. 335, 671. Paris.
Jones, Maxwell (1952). *Social Psychiatry.* London.
Kalinowski, L. B. (1950). *Amer. J. Psychiat.*, **107**, 340.
Lewis, A. J. (1935). *Lancet*, **2**, 293.
—— and Jones, Maxwell (1941). Ibid., **1**, 813.
Markowe, M., Tonge, W. L., and Barber, L. E. D. (1955). *Brit. J. prev. soc. Med.*, **9**, 39, 46.
Mayer-Gross, W., Slater, E., and Roth, M. (1954). *Clinical Psychiatry.* London.

THE FOOT AS A HALF-DOME

BY

J. McKENZIE, M.B., Ch.B.

Department of Anatomy, University of Aberdeen

Although the foot is usually described as having medial and lateral longitudinal arches and a transverse arch, a few writers—for example, Ellis (1889) and Wood Jones (1949)—have compared the foot to a half-dome, the weight being transmitted from the talus to the periphery of the foot, which forms more or less a half-circle as seen in the footprint.

There are three sound reasons why this latter method of regarding the foot should be more widely taught.

(1) The trabeculae within the bones indicate the direction of weight transmission, and in radiographs of the individual bones of the tarsus the fan-like arrangement of the trabeculae in the navicular and their downwards and lateral direction in the cuboid are particularly noticeable. Sections through the bones show the pattern even better; in a longitudinal section through the calcaneum the trabeculae radiate forwards, backwards, and downwards, while in a cross-section of the calcaneum through the sustentaculum tali they splay downwards and laterally. If these trabeculae are projected on to the surface of the bones and the bones then articulated (Fig. 1), a picture is formed of a series of "half-arches" or "quarter-meridians" radiating from the talus to all the peripheral weight-bearing part of the foot (Fig. 2). Naturally there are still longitudinal and transverse arches, depending on how the foot is sectioned, but these arches are of no significance in the function of the foot unless the sections coincide with bony trabeculae.

(2) Most students have obviously, and unfortunately, obtained the ridiculous impression that a person uses only the longitudinal arches when walking, whereas between coming down on the heel and pushing off with the toes a

FIG. 1.—The trabeculae projected on to the surfaces of the articulated foot-bones.

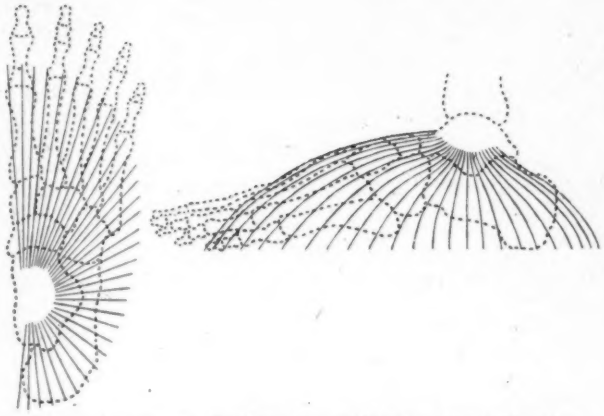


FIG. 2.—Diagrams to illustrate the relations of the half-arches to the bones of the foot.

walker bears weight, in turn from behind forwards, on all the half-arches. In fact, in the case of an in-toeing walker, who does not push off with his big toe (he uses the lateral toes), most of the strain is put on arches running neither longitudinally nor transversely, but obliquely. To describe the foot as having longitudinal and transverse arches only, simply does not cover this type of case.

(3) By comparing the foot to a half-dome, we get a better understanding of the deformities seen in flat-foot (or weak-foot). When a normal foot takes the weight of the body there is the well-known but variable elongation of the foot, because the half-arches, reaching anteriorly and posteriorly, have flattened or yielded under the strain. But what happens to the transverse and oblique half-arches? When they yield under the body weight they throw the summit of the half-dome—namely, the talus—medially. Fig. 3 shows a person sitting with his feet just a little apart; when he stands up without shifting his feet (Fig. 4), notice how the medial malleoli come together. In a case of flat-foot which is the result of faulty posture or weakness of muscles and ligaments, one obvious feature is the low medial border of the foot; but it is well known that in the normal foot the arching or doming may be very high or very low, so this feature is no criterion. If, however (Fig. 5), the talus and medial malleolus have been pushed medially and downwards to a marked degree (or, as it is sometimes expressed, have "rolled-in"), thereby giving pronation of the fore-foot and valgus deformity of the heel (Fig. 6), then there is no doubt that we are dealing with a foot whose doming or arching has collapsed.

Look again at the diagrams (Fig. 2) and the positions of the bony trabeculae in the foot (Fig. 1) and it becomes obvious that this is the only way in which a foot can possibly flatten out—that is, for the summit of the dome to be pushed medially as well as downwards. The alternative, were it possible, would be the summit sinking straight downwards, requiring a splaying out of the transverse and oblique half-arches at their peripheral weight-bearing ends, thereby producing a longer lateral border to the foot; but these half-arches, with a few exceptions, are contained within the calcaneum and therefore cannot separate from one another. Even if the calcaneo-cuboid and cubo-metatarsal joints were to open out (and there is no attempt at this in flat-foot), it would not be sufficient, because most of the transverse and oblique half-arches are behind these joints.

FIG. 3 FIG. 4

FIG. 3.—Feet bearing no weight: medial malleoli just a little apart. FIG. 4.—Same feet as in Fig. 3, and in same position but bearing body weight: medial malleoli now in contact.

FIG. 5.—Flat-foot, showing pronation of forefoot.

FIG. 6.—Flat-foot, showing valgus deformity of heel.

Summary

Comparing the foot to a half-dome has these three advantages over the older description: (1) It gives a true picture of how the weight is transmitted through the foot. (2) It forbids false impressions of how the foot is used in walking. (3) It allows of a better understanding of the deformities seen in flat-foot.

I am indebted to Professor R. D. Lockhart for his helpful criticism in the preparation of the paper; to Mr. A. Cain, A.R.P.S., for the photographs; and to Mr. W. Cruickshank for the diagrams.

REFERENCES

Ellis, T. S. (1889). *The Human Foot: its Form and Structure, Function and Clothing.* Churchill, London.

Jones, F. Wood (1949). *Structure and Function as Seen in the Foot,* 2nd ed. Baillière, Tindall and Cox, London.

Medical Memoranda

Anorectal Ulcer in Chicken-pox

Chicken-pox lesions situated on uncommon sites such as the conjunctiva, prepuce, vulva, larynx, and trachea often give rise to symptoms. This report presents a case of chicken-pox, with constipation and a severe bearing-down pain, in which proctoscopy showed an ulcer of the anorectal region.

CASE REPORT

A boy of 12 was referred to the casualty department on April 7, 1953, as a possible abdominal emergency. He had previously been well, and his family and detailed past history was not significant. Six days before admission a skin lesion appeared on the left hip, and crops of lesions erupted each day during the next three days, the general order of spread of the rash being from hip to abdomen and back, to lower limbs, and to head and scalp. This chicken-pox eruption was heavy and generalized. The temperature rose to 38.5° C. on the second day of illness.

On the fourth day of the eruption, two days before admission, the boy complained of pressure in the lower abdomen and a desire to defaecate. This increased on the following day, but he was unable to pass a motion because of the onset of a severe sharp pain in his rectum on attempting this. Periodic attacks of the pain even woke him at night. As these pains increased in severity and frequency, he was referred to hospital. Micturition also became painful.

On admission he was rolling about and complaining of severe pain in the lower abdomen; physical examination was therefore difficult. He was an intelligent and well-nourished boy. The temperature was 37.7° C. The scalp, face, trunk, and lower limbs showed numerous scabbing chicken-pox lesions. The tongue was coated with a yellow fur, but the edges were moist. On palpation a fullness of the lower abdomen and the possible presence of a mass on the left side were noted. Rectal examination was not successful, since the boy resisted the procedure and the sphincter was in marked spasm. During a barium enema *x*-ray examination shortly after admission, the medium was seen to enter the descending colon, and soon afterwards a large soft faecal stool was passed, free from blood and scybala. Analgesics were given during the day, in the course of which three more bulky motions were passed. The next day he was still in pain, and sigmoidoscopy was performed under thiopentone anaesthesia. The presence of faeces prevented adequate inspection of the mucosa. Following this examination, apparently because of the dilatation of the anal sphincter, the patient experienced much relief, and it was possible to give cleansing enemata. On the third day of hospitalization proctoscopy showed a yellowish-grey ulcer about 8 mm. in diameter situated 2.5 cm. from the anal margin at about 2 o'clock, the surrounding mucosa being redder than elsewhere. The anal sphincter was then well stretched.

Much relief followed this second endoscopic examination, although he still complained of some pain during defaecation, and the sphincter remained in spasm. He was discharged on a regime of liquid paraffin by mouth and suppositories. Follow-up proctoscopy on April 13 showed the ulcer to be shallower with a clean base, and sigmoidoscopy to a depth of 10 cm. revealed no abnormality. On April 23 proctoscopy showed complete disappearance of the ulcer and a normal mucosa. The patient had no complaints. Full examinations of faeces and urine had been repeatedly negative.

COMMENT

The symptoms referable to the anorectal region appeared during the eruption of successive crops of chicken-pox lesions, and there was no other known cause for the ulcer, such as scybala, a generalized proctitis, or any trauma. It is almost certain, therefore, that this ulcer developed from a chicken-pox lesion. It was not possible to locate the site of the lesion in relation to the pectinate line, but the symptoms, the severe spasm of the sphincter, and the relief following stretching of the anus suggest that the ulcer was within the upper limits of the anal canal. This point is relevant because of the difference in histology between the rectum and the anal canal, the lining of the latter being transitional epithelium.

Although vesicles of the buccal mucosa are quite common in chicken-pox, there are few records of lesions in other parts of the alimentary tract. The usual clinical examination naturally does not reveal such lesions, and so benign a disease rarely yields necropsy material. Mitchell and Fletcher (1927) note two patients with "ileo-colitis" among 775 cases of chicken-pox. Bullowa and Wishik (1935) list appendicitis in five patients and intestinal intoxication in three among the complications in 2,534 cases of chicken-pox. It is probable that the above were unrelated to the initial illness. Dr. H. Stanley Banks (personal communication, 1953) has not encountered intestinal ulceration in chicken-pox.

Post-mortem reports on patients dying with chicken-pox occasionally refer to gastro-intestinal findings. Johnson (1940) described five small shallow ulcerations of the oesophagus in an infant of 7 months, the lesions showing areas of focal degeneration similar to those in the skin. Oppenheimer (1944) reported a premature infant dying at 11 days who showed disseminated necroses and intranuclear inclusions in the oesophagus, stomach, and intestines. Lucchesi *et al.* (1947) noted that the stomach of an infant of 12 days showed hyperplasia and hypertrophy of the surface epithelium and a few tiny scattered areas of necrosis associated with intranuclear inclusions. In a woman aged 32, whose case is described by Claudy (1947), the sole abnormality in the digestive tract was a few small haemorrhages in the crests of the intestinal folds. Numerous shallow ulcers of the oesophageal mucosa with chronic inflammation of the submucosa were noted by Frank (1950) in a woman of 34. Eisenbud (1952), in a necropsy on a woman aged 71, found a few small haemorrhages in the wall of the small intestine extending through the entire thickness of the gut. Hackel (1953) studied the necropsy findings in 11 patients who died with active chicken-pox and (personal communication, 1953) found no lesion of the gastro-intestinal tract.

The reports of visceral involvement in chicken-pox support the view of Scott (1951) that the virus is carried via the blood stream. There seems no reason, therefore, why

any part of the body should not occasionally show localization of the virus, which, furthermore, has a predilection for epithelial structures.

I wish to thank Dr. W. Falk for permission to report this case and Mr. T. J. Shields, B.M.A. Librarian, for help with one of the references.

S. T. WINTER, M.B.E., M.B., D.C.H.,
Paediatrics B Department,
Rambam Hospital, Haifa, Israel.

REFERENCES

Bullowa, J. G. M., and Wishik, S. M. (1935). *Amer. J. Dis. Child.*, **49**, 923.
Claudy, W. D. (1947). *Arch. Intern. Med.*, **80**, 190.
Eisenbud, M. (1952). *Amer. J. Med.*, **12**, 740.
Frank, L. (1950). *Arch. Path. (Chicago)*, **50**, 450.
Hackel, D. B. (1953). *Amer. J. Path.*, **29**, 369.
Johnson, H. N. (1940). *Arch. Path. (Chicago)*, **30**, 294.
Lucchesi, P. F., LaBoccetta, A. C., and Peale, A. R. (1947). *Amer. J. Dis. Child.*, **73**, 51.
Mitchell, A. G., and Fletcher, E. G. (1927). *J. Amer. med. Ass.*, **89**, 279.
Oppenheimer, E. H. (1944). *Bull. Johns Hopk. Hosp.*, **74**, 240.
Scott, T. F. McNair (1951). In *Modern Practice in Infectious Fevers*, edited by H. Stanley Banks, 2, 594. London.

Asphyxia Pallida Responding to Endotracheal Insufflation after 140 Minutes

Much interest has been aroused by recent publications on the treatment of asphyxia neonatorum by endotracheal insufflation and intragastric oxygen. Little mention is made, however, of how long these measures should be continued when there is no response. This case is of interest because the infant made a dramatic recovery after complete absence of spontaneous respiration for two hours and twenty minutes.

CASE REPORT

The mother was a primigravida aged 32. She was booked for hospital confinement and attended the antenatal clinic regularly. Her general condition was excellent throughout. Her blood was Group O, Rh positive; haemoglobin 84%. The W.R. and Kahn test were negative. Breech presentation was diagnosed at 36 weeks and external cephalic version was attempted but was not successful. *X*-ray pelvimetry showed the pelvis to be of good shape and ample dimensions.

Labour was induced at 39 weeks, this being the customary treatment of breech presentation in a primigravida at this hospital. Medicinal induction consisting of castor oil, 2 oz. (60 ml.) by mouth, followed by an enema and a hot bath, was first given. This was followed by surgical induction with a solid rubber bougie. Labour pains began two hours after the latter procedure. The first stage of labour was uneventful and lasted 24 hours. The membranes ruptured after 16 hours. Sedatives given were syrup of chloral, 30 gr. (2 g.), at 12 hours, and pethidine, 100 mg., at 20 hours. The second stage lasted 30 minutes. Spontaneous breech delivery followed under pudendal block anaesthesia. A liberal episiotomy was performed and the head was delivered easily with Wrigley's forceps. The foetal heart was regular throughout. There was no cord anomaly.

The infant gave one gasp after delivery but made no further attempt at respiration. The nostrils, mouth, and pharynx were sucked clear of mucus and liquor, and the infant was placed in a warm cot in an inverted position. After five minutes there was still no attempt at respiration, and the infant had the classical appearance of asphyxia pallida. The heart was beating regularly at 110 a minute. After 10 minutes intragastric oxygen was begun with Akerrén's method. This treatment was continued for a further 10 minutes, but the infant remained pale and was flaccid and inert. The heart rate dropped to 100. In view of this, endotracheal intubation was carried out with a Magill infant laryngoscope and a Magill No. 3 endotracheal catheter. Laryngoscopy showed that the larynx and pharynx were patent and clear of mucus. Insufflation was started with a Gibberd insufflator. Pure oxygen was delivered from the bag 30 times a minute at a pressure of 20 mm. Hg. After five minutes the infant became pink but remained atonic. The heart rate rose to 120. The only evidence of spontaneous respiration was isolated gasps occurring at half-minute intervals.

For the next 90 minutes insufflation was continued. The state of the baby remained unaltered and shallow gasps continued to occur at the rate of two a minute. Resuscitating measures had now been in progress for 110 minutes. After two hours signs of improvement appeared. There was a deepening in the respiratory gasps and the infant gave a feeble cry. During the next 20 minutes there was a rapid recovery of muscle tone, with deepening and quickening of respirations, culminating in normal spontaneous respiration after 140 minutes. The endotracheal tube was then removed. One hour later the infant was breathing normally and crying lustily.

The birth weight was 6 lb. 6 oz. (2,890 g.). The infant was vigorous and normal in every way. The grasp and Moro reflexes were present and the muscle tone was good. Its cry was quite normal. It was breast-fed without difficulty and weighed 6 lb. 7 oz. (2,920 g.) when discharged after 14 days.

Stimulant drugs given during the period of asphyxia were as follows: lobeline into the umbilical vein, 3 mg., at 10 and at 60 minutes; nikethamide, 0.5 ml. intramuscularly, at 15 and at 40 minutes.

COMMENT

Recovery, as judged by spontaneous respiration, is recorded by Lord *et al.* (1953) as having occurred two hours after delivery in a child treated by endotracheal insufflation of oxygen. This is the longest interval that we have been able to find recorded between delivery of an asphyxiated child and the initiation of respiration. The asphyxia in this case was severe, and was due to the inhalation of large quantities of blood and liquor. Gibberd and Blaikley (1935) state that recovery occurs a few minutes after beginning insufflation. Akerrén and Fürstenberg (1950), describing the treatment of asphyxia by intestinal oxygen, record no cases in which recovery did not occur within ten minutes.

The change in colour which followed immediately after starting endotracheal insufflation is evidence of the superiority, in our case, of this method over that of the relatively more simple one of gastric oxygen. The cause of the asphyxia in our case is not clear. Although a breech delivery, no undue difficulty was encountered. We can assume that the usual doses of sedation employed did not depress the respiratory centre to a dangerous degree, and that, in view of ultimate recovery, cerebral haemorrhage was unlikely.

It will be necessary to observe this child over a period of years to be certain that no lasting damage has been sustained. We have taken the normal appearance of the child and its capacity for suckling as evidence of an intact nervous system. In view of the importance attached at present to birth asphyxia as a cause of neurological and psychiatric disturbance later in childhood, the follow-up in this case should prove of some interest.

Finally, in view of the successful outcome it is worth stressing that the resuscitating team must be prepared to persevere as long as the heart beat is maintained.

We wish to thank Mr. Rufus C. Thomas and Mr. K. G. Seager for permission to publish this case and for their help and encouragement in preparing the case report.

JOHN A. HOLMES, M.A.O., D.Obst.R.C.O.G.,
J. A. PAYNE, M.B.,
Department of Obstetrics and Gynaecology,
Farnborough Hospital, Kent.

REFERENCES

Akerrén, Y., and Fürstenberg, N. (1950). *J. Obstet. Gynaec. Brit. Emp.*, **57**, 705.
Gibberd, G. F., and Blaikley, J. B. (1935). *Lancet*, **1**, 736.
Lord, J. M., Powell, B. W., and Roberts, H. (1953). *Ibid.*, **2**, 1002.

Reviews

ARTHRITIS AND RHEUMATISM

Arthritis and Rheumatism: The Diseases and Their Treatment. By Charles LeRoy Steinberg, M.D., with five contributors. (Pp. 326+ix; illustrated. 70s.) New York: Springer Publishing Company Inc. London: Lange, Maxwell and Springer Ltd. 1954.

During recent years there have been considerable advances in our understanding of the rheumatic diseases, and many arthritic conditions have been more accurately described and more precisely defined. This has led to considerable improvements in the diagnosis and management of patients suffering from polyarthritis and rheumatic disorders. At the same time there have been great advances in our understanding of the nature and behaviour of the connective tissues. It would be most valuable to the general practitioner and the medical student if this new information could be clearly and concisely summarized in book form.

At first sight Dr. Steinberg's book would appear to fulfil this need. It is about the right size, is well illustrated and produced in an attractive, readable form, and contains a useful bibliography after most chapters. But the text is disappointing. For example, the chapter on rheumatoid arthritis does not give a clearer picture of this important disease than can be obtained from any textbook of general medicine. Some statements are definitely misleading. Thus, in describing the treatment of spondylitis the authors state that "rest is important for these patients," whereas most British rheumatologists would agree that exercise was all-important and rest deleterious for patients with this condition. The section on Reiter's disease gives a very full account of Reiter's original paper, which was both a misleading and unimportant contribution to this subject, whereas it fails to mention the important accounts of the epidemics of this condition which have occurred in Eastern Europe and does not even consider the possibility of venereal transmission of the disease. Under the heading "Hypertrophic Pulmonary Osteoarthropathy" the authors state: "These changes are limited to the soft-tissue structures and are associated with curved or parrot-beaked nails," no mention at all being made of the important bone and joint changes. And a little later they reproduce a radiograph of a hand in which the only abnormality that can be seen is minimal osteoarthritis of the terminal interphalangeal joints, though the figure carries the caption of "Acromegaly showing tufting of the phalanges. This may easily be confused with osteoarthritis of the hands." In the bibliography, however, the authors quote papers in which the joint changes in hypertrophic pulmonary osteoarthropathy and acromegalic joint disease are described in great detail.

These may be minor points, but they do not suggest that this book provides either a useful or an accurate account of recent work.

J. H. KELLGREN.

PAEDIATRIC DIAGNOSIS

Pediatric Diagnosis. By Morris Green, M.D., and Julius B. Richmond, M.D. (Pp. 436+xvii; 50s.) Philadelphia and London: W. B. Saunders Company. 1954.

The authors of this book feel that the significant decrease in morbidity in childhood, coupled with a growing parental regard for the maintenance of their children's health, has changed and broadened the scope of the work of paediatricians to-day.

The book is divided into four sections, with an appendix of percentiles. The first section deals with history-taking, and this is full of good practical advice. The second deals with the physical examination, arranged anatomically, from above downwards, and this part, too, is well set out. The third section is concerned with common signs and symptoms and their significance, and this is perhaps the least valuable part of the book, for it consists to a large extent in lists of causes—as, for example, of constipation, diarrhoea, pleurisy, and cyanosis—and short paragraphs in the nature of synopses on various subjects. However, many references are given, both interspersed in the text and at the end of sections. These are well chosen, up-to-date, and generally accessible.

The fourth section is on health supervision, considered under the headings prenatal, infancy, pre-school, school years, and adolescence—in each group the physical and psychological development being considered separately. The authors stress that the evaluation of a healthy child requires the same considered diagnostic approach as that applied to the evaluation of symptoms related to disease. Certain self-evident statements in diagnosis might have been omitted—for example, that testicular function may be impaired after surgical castration, and that pruritus may be marked in patients with infantile eczema and scabies; and certain other statements are doubtful—for example, that kernicterus may be a complication of severe diarrhoea, that anal fissure is the commonest cause of melaena in young infants, and that bow-legs are a cause of leg pains.

The book follows the modern trend of stressing the importance of the psyche in child health; indeed, there seems to be an undue stress on this aspect—as, for example, the parents' psychological instability in their anxiety about premature and malformed infants and their worry about the irregularities of respiration in early life, the authors saying that referral for psychiatric help may be considered in such cases.

The book is well produced; the printing is good and the text singularly free from typographical errors. Much of it may be read with interest and profit by child psychiatrists: paediatricians too may be interested in this method of presentation of paediatric diagnostic methods.

WILFRID GAISFORD.

PHYSICAL TREATMENT IN PSYCHIATRY

An Introduction to Physical Methods of Treatment in Psychiatry. By William Sargant, Eliot Slater, and Denis Hill. Third edition. (Pp. 352. 20s.) Edinburgh and London: E. and S. Livingstone Ltd. 1954.

This book has already earned general acceptance in this country as a practical and readable guide to physical methods of treatment, and in the third edition the authors have succeeded in bringing each section up to date while preserving the character of the book as a whole. The radical changes made in the selective bibliography bear witness to the volume of recent literature from which they have had to pick out reliable improvements in method. The book has now reached an ideal length for the psychiatrist in training or in hospital practice, and its arrangement is such that it can be used for reference by the undergraduate medical student and the harassed nurse who is trying to keep up with an ambitious syllabus.

The present edition follows the previous plan by which, after a short but penetrating account of the general principles of treatment, the rationale of each method is discussed before a detailed account is given of its practical application. The authors are able from their own personal experience to illustrate and comment on the methods described, and are, in fact, rather loath to present methods with which they have not full practical acquaintance. Their coverage of the subject does not include hydrotherapy, physiotherapy, methods of physical rehabilitation, or occupational therapy.

The attitude to physical treatment is throughout that of the well-informed optimism with which any method of treatment must be approached once it has been decided to carry it out. In discussing the choice of treatment, time, even in small doses, is not perhaps given the credit it deserves as a healer.

There is a new chapter on the treatment of alcoholic addiction, and the section on the effects of leucotomy operations has been entirely revised in the light of the longer follow-up studies and the results of accurately localized

operations that have become available since the last edition. A reasonable and restrained attitude to the numerous new drugs has been maintained, and, while all are mentioned, the tendency is to recommend the tried remedy until there is adequate experience of the new preparation under controlled conditions.

This is likely to be the accepted text in this country for some time to come.

ALEXANDER KENNEDY.

CORONARY DISEASE IN YOUNG ADULTS

Coronary Heart Disease in Young Adults: A Multidisciplinary Study. By Menard M. Gertler, M.D., and Paul D. White, M.D., with the aid and advice of seven editorial assistants. (Pp. 218; illustrated. 40s.) Cambridge, Mass.: Harvard University Press. London: Oxford University Press. 1954.

By its increasing frequency and as a leading cause of death, obliterative coronary disease has become in the last ten or twenty years the outstanding malady of our time. The problem not only concerns the individual and his treatment, it also has widespread economic repercussions on the family, on industrial efficiency, and ultimately on the welfare of the State itself. Yet what is known of the aetiology of coronary atherosclerosis, and what can be done to prevent its development, check its progress, or arrest its ravages, now so prevalent in middle life at the peak of a man's powers?

This monograph, which emanates from the Harvard Medical School, presents a summary of an intensive search for significant aetiological clues. The work has been conducted by a team whose contributions are summarized by Gertler and White. The topics considered range widely from the clinical to the genetic, morphological, hormonal, psychological, and biochemical aspects—truly an ambitious undertaking. With the intention of investigating the uncomplicated disease the authors have wisely restricted their inquiries to 100 patients surviving a myocardial infarct sustained before 40 years of age. For each aspect of the investigation a "matched-pair" control composed of healthy individuals was made available for comparison. Had a third group consisting of some other form of vascular disease with a predilection for the male been available—say thromboangiitis obliterans—it would have enhanced the value of the authors' findings.

Among many aetiological clues it is certainly an outstanding fact that below the age of 40 acute myocardial infarction—the hall-mark of coronary disease—is 20 to 30 times more frequent in males than in females. With successive decades the ratio declines until in the age group 60 to 69 years there are two males for every female. After age 70 the sexes are equally affected. The relative immunity of premenopausal women, which has its counterpart in the experimental work of Katz on the protective influence of oestrogens on the cholesterol-fed cockerel, opens a line of inquiry which calls for further study.

One virtue of this book, which deals with so many aetiological considerations, is that it points the way for further clinical and biochemical investigations. It makes a distinct contribution to a perplexing subject, provides a rich store of information, confirms and extends our knowledge of the problem, and will long prove a source of reference for workers in this field. Unfortunately, the English at times is disjointed and jarring, lacking that free flowing style which holds the reader's attention and facilitates ready assimilation of the facts.

A. RAE GILCHRIST.

MEASUREMENT OF UTERINE ACTION

Clinical Measurement of Uterine Forces in Pregnancy and Labor. By S. R. M. Reynolds, Ph.D., D.Sc., Jerome S. Harris, M.D., and Irwin H. Kaiser, M.D., Ph.D. (Pp. 328+xiv; illustrated. 69s.) Springfield, Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications. 1954.

The important work of Reynolds, the physiologist, is well known to those clinicians who take an active interest in uterine physiology. In recent years he has collaborated with several practising obstetricians in developing an apparatus for recording uterine action in late pregnancy and labour. This instrument, the multichannel strain-gauge tokodynamometer, is a mechano-electrical device based on the familiar principle of a "button and ring," measuring and recording movements of the abdominal wall caused by the anterior displacement of the uterus which occurs during contractions. Unlike some of its forerunners, Reynolds's tokodynamometer is simple to use. It thus has found wide application in extensive clinical surveys and has been the basis of a long series of publications on uterine action.

This new book now brings together in one convenient volume the results of the authors' earlier work, hitherto only accessible in the many original papers. Early chapters include a comprehensive review of the history of the subject, including the recent developments with internal methods by Alvarez and Caldeyro of South America and by Karlson of Sweden. As to the authors' own work, the theory of the normal "gradient of activity" from fundus to lower segment is described in detail together with methods of mathematical analysis of the tokodynamometric records. The action of commonly used drugs is discussed, and studies of the emotional control of uterine activity indicate the necessity for having adequate controls in any clinical trial of new drugs when the measure of effect is a subjective one.

This book will be welcomed by obstetricians and physiologists alike as providing a useful summary of the studies of human uterine action to date—studies which, in the future, may yet provide the key to the unsolved problems of aetiology and ideal treatment of inefficient uterine action in labour.

W. J. GARRETT.

ARTIFICIAL RESPIRATION

Artificial Respiration: With Special Emphasis on the Holger–Nielsen Method. By T. O. Garland, M.A., M.D., D.P.H. (Pp. 60; illustrated. 6s. 6d.) London: Faber and Faber, Ltd. 1955.

This is a book which should be read by every doctor, whether or not he is engaged in teaching first-aid methods. The production is excellent and the text is illustrated with eminently practical photographs and diagrams. Using simple language, the author combines clarity of expression and explanation of technical data, which makes the subject easily understood by doctors and laymen alike. After a concise account of the mechanics of breathing there is a brief review of artificial respiration from earliest times up to the Pask experiment in 1943. This is rightly described as being of great historical importance, leading as it did to the American experiments in 1950 and 1951, in which the effectiveness of the various procedures was evaluated. This integrated research at certain American medical schools proved conclusively that the tidal air flow and blood-oxygen saturation in the Holger–Nielsen method were immensely greater than in the Schäfer, and furthermore that this arm lift-back pressure procedure was easy to learn and only slightly more fatiguing. Stress is rightly laid on the vital importance of a prompt start of artificial respiration and on methods which can be applied in difficult circumstances—for example, in a small boat, or at the top of a pole when a man is hanging in his safety-belt after electrocution. The latter certainly requires very special training and practice. Eve's rocking method is fully described and illustrated, mention being made of one possible serious drawback to this procedure—the regurgitation of stomach contents into the mouth, whence they may be inhaled into the lung. The author advises that artificial respiration should be maintained for two hours while the patient is kept warm and oxygen administered, though he adds a note of caution on the possibility of over-ventilation.

This admirable book makes it clear that as soon as the Holger–Nielsen method has become widely known the Schäfer method should be dropped altogether.

E. J. GORDON WALLACE.

BRITISH MEDICAL JOURNAL
LONDON
SATURDAY APRIL 30 1955

U.S.A. TRIALS OF POLIOMYELITIS VACCINE

A report of the field trial of poliomyelitis vaccine whose outcome was announced and discussed in these columns last week has now become available and a summary appears at page 1083 of this issue of the *Journal*. In any piece of research the validity of the results depends on the method of investigation, which in this study was of necessity complex. A vaccine evaluation centre established under the directorship of Dr. Thomas Francis, jun., at the University of Michigan, and sponsored by the National Foundation for Infantile Paralysis, co-ordinated the work of about 150,000 people. Study areas were chosen in counties where high incidence of poliomyelitis had been experienced in recent years and where local conditions were suitable.

Two distinct plans were adopted, called the "observed control study" and the "placebo control study." In the first, children in the second grade of school, mainly 7 years old, were to be vaccinated and their subsequent experience of poliomyelitis compared with that of children in the first and third grades of the same schools. This plan was adopted in 127 areas of 33 States. The parents of just under 70% of children in the second grade agreed to let their children take part, and subsequently 221,998 children, 62.4% of the total in the grade, received the complete course of three injections. These were completed between late April and mid-June, 1954. In the report the results are given of the incidence of poliomyelitis in this vaccinated group between two weeks after vaccination and December 31, 1954, compared with the incidence in the 725,173 unvaccinated children in the first and third grades. Unfortunately this procedure is open to criticism. It may not be a fair assumption, for instance, that the experience of second-grade children would be the average of that for first and third grades in the absence of vaccination. A more serious bias lies in the selection of the children in the second grade whose parents agreed to have them vaccinated. Confirmation of this comes from an ancillary study conducted by the survey research centre of the University of Michigan in areas in which the alternative, placebo control study, was adopted. Here, in a sample of 1,300 families, they found that the second-grade children whose parents agreed to their taking part had been more frequently vaccinated against smallpox, diphtheria, and whooping-cough, that their mothers were as a group better educated, and that the families were better housed and came from higher income groups than the second-grade children whose parents did not agree to their taking part in the trial. Therefore, if the vaccinated children were not representative of all second-grade children, it is not a fair comparison to use all first- and third-grade children as controls. A better control group would have been those first- and third-grade children who would have participated if vaccination had been offered to them, but these could not be determined from the records. Alternatively, the experience of all second-grade children, vaccinated and unvaccinated, should be taken against that of all in the first and third grades, and the watering down of any protective effect accepted. This is to be done in a subsequent report, and until this alternative analysis is available it would be unwise to draw conclusions from the observed control study.

In the placebo control study half the participating children in first, second, and third grades of public schools were to be given the three injections of vaccine, while the other half were to be given three injections of a material similar in appearance but containing no vaccine. The identity of the vaccine and of the placebo was concealed by the use of code numbers. This plan was adopted in 84 areas of 11 States. Just over 60% of this group agreed to take part in the trial, and subsequently 57.7% of the total in the three grades received the complete course of three injections; the numbers of children completing the course of vaccine and placebo were 200,745 and 201,229 respectively. In these groups, virtually identical in size, there were 57 cases of all types of poliomyelitis among the vaccinated and 142 among the controls. Of these, paralytic cases were 33 and 115 respectively, giving rates of 16 and 57 per 100,000. The vaccinated group therefore experienced only 28% of the poliomyelitis of this type seen in controls, a difference which was highly significant. Spinal paralytic cases numbered 28 in the vaccinated and 70 in the controls, bulbar cases 3 and 5, and bulbo-spinal 2 and 36; the 4 fatal cases (undefined) were all in controls. The greatest difference lies therefore in the bulbo-spinal type, but this is difficult to interpret in view of the small difference in pure bulbar cases. Within the spinal group the records revealed little difference in the severity of paralysis between vaccinated and control children who developed this type of disease. Non-paralytic cases numbered 24 in

[1] *Amer. J. Hyg.*, 1954, **60**, 371.

the vaccinated and 27 in the controls, so that here no difference was observed.

The report puts emphasis on the laboratory-confirmed cases and on virus-positive cases, the incidence of these categories in the vaccinated group being a fifth or less of that in the controls. The criterion for a serologically positive result was a fourfold rise in titre to one type of virus only—or to the homologous type if virus was isolated in the stools—observed between the first and second specimens. The report includes evidence that the frequency of a fourfold rise in titre is dependent on the level of antibody in the serum before vaccination. As the prime effect of vaccination is to raise the level of antibody above that in the controls, it would seem that the criterion of serological positive would operate unequally between the two groups. The comparison by means of serologically positive cases only may not be so good, therefore, as reliance on paralytic cases, which were in any case fully investigated and reported. A similar argument applies to virus isolation as a standard for comparing vaccinated and controls. H. A. Howe[1] has shown that alimentary infection in chimpanzees given Type I virus orally is of shorter duration in vaccinated animals than in similar controls. If this result is applicable to man, it might account for the relative difficulty of virus isolation in a vaccinated group, and once again insistence on such a criterion would give a biased comparison. In practical terms a vaccine is wanted which will prevent paralytic poliomyelitis, and this effect is ably demonstrated in this study without reference to laboratory confirmation of diagnosis.

Several batches of vaccine had to be used in the study, and in some areas several lots were used in combination. Their antigenic potency was found to vary widely. Lots, or combinations of lots, were graded, "good," "moderate," "low moderate," and "poor" in antigenic potency. The difference in incidence of paralytic poliomyelitis between vaccines graded "poor" and their corresponding controls was as great as that between vaccines graded "good" and their controls. This may be partly because the grading depended largely on the response to Type I virus, and one lot producing little antibody to Type I was antigenic for Type III, the strain which, by chance, predominated in the epidemic seen in the area in which it was distributed. Even so, the lack of correlation between serological and field trial results is interesting. Special attention was paid to reactions to vaccination. No difference was observed in the frequency, nature, and severity of reactions between vaccine and placebo groups, and in particular kidney disease was equally rare in both. No localization of paralysis to the limb of inoculation was seen in children who developed poliomyelitis within one month of vaccination.

The report seems to establish clearly from the placebo control study that the vaccine prepared by Dr. Jonas E. Salk is safe and protects against paralytic poliomyelitis. Such a report, produced with admirable promptness, is bound to raise problems and leave questions unanswered. The antibody titres have been observed for a relatively short time in vaccinated children, and it is too early to say whether the fall in the levels seen in samples taken in November, 1954 (about six months after vaccination), is significant and indicates that the duration of protection without reinforcement will be short. The relation between antigenic potency and field response requires detailed study, particularly in other epidemiological environments. The extent of the protection is far from absolute, but again it is too soon to say whether it might not be adequate if most of the community at risk were vaccinated. The authors of the report and their many collaborators are to be congratulated on this enormous and important undertaking, and in Britain this preliminary publication will be received as a challenge and as a stimulus to important work still to be done.

CRITICS OF THE N.H.S.

The worst that could happen to medicine in this country would be an apathetic acquiescence in the working of the National Health Service. We are all caught up in its mechanism, a mechanism of forms and administration, committees and reports of committees, ministries and Civil Servants and their endless stream of regulations—and with it all there is the temptation to believe it is all for the best, that the right formula for a health service has been found. The two opening articles in this week's *Journal*—one by a middle-aged consultant and the other by a young general practitioner—should shatter this illusion, if indeed anyone holds it. Neither author complains of poor remuneration. Neither complains of overwork. "There is no doubt," writes Dr. Grant, "that the established young general practitioner in partnership practice to-day has a much easier time of it than his predecessors. . . . Finally, he has a secure pensionable job." Comparing the present with the past position of registrars Dr. Kennedy asks: "I wonder if this security is altogether a good thing. . . . The present-day system breeds a mentality whose horizon is bounded by the hospital walls." And within the hospitals walls he observes the evil effects of the fear of litigation with its stifling of the initiative and enterprise that have prompted so much of the advance

of medical, and especially surgical, treatment. Dr. Kennedy and Dr. Grant both see apathy creeping in, with the inevitable deterioration of standards. If they are right in the observations they make and the conclusions they draw then neither public nor profession can remain indifferent.

"What a system!" says Dr. Grant: a system "designed to undermine incentive and initiative," a system in which a list of "heads" has to be built up to provide a living wage, a system in which "the G.P. can very easily degenerate into a rather apathetic kind of sorting clerk." And Dr. Grant finds himself cut off from the hospital in which he spent six of the best years of his life. He finds "a widening gap between hospital staff and general practitioners." He finds in the city in which he practises that his obstetric patients must attend an antenatal or local authority clinic if they want to be assured of a hospital bed. He finds a "very real danger that the young practitioner, excluded from the hospital and committed to his desk *by the system* [our italics], may become apathetic. . . ." The reader of Dr. Grant's article will probably conclude that it is not written by someone who feels himself miscast as a general practitioner: it is clearly in the work of a general practice that he sees the opportunity of fulfilling his sense of vocation—if it were not for "the system."

Dr. Kennedy qualified twenty-five years before Dr. Grant, and with the disillusionment of middle-age approaches his selected topics in a more prosaic fashion, stirred out of this by his indignation, shared by so many, over the merit awards: "Cloaked in such diabolical secrecy as these awards are, it is often difficult to get at the truth, and not unnaturally the wildest rumours run riot, but enough is known to say that wrongful decisions have been made." Dr. Kennedy looks back with nostalgia to the days when he and his generation had the thrill of the struggle to make headway by their own ability and initiative, a struggle not for security but for advancement. Both he and Dr. Grant see in the private practice of medicine a liberation from the trammels of "the system," and it is of interest to note that the young general practitioner sees in this a stimulus to practising better medicine, not to earning a better living. But whatever changes may yet take place it would seem safe to say that some nine-tenths of the population will always take advantage of the publicly provided service. It is perhaps for this reason that Dr. Grant appears to advocate one characteristic of private practice—fee for item of service in place of the capitation fee.

"I began to see," writes Dr. Grant, "that my job was mainly people—people as personalities, as human beings, who had families and worries. . . ." "Let us never forget that our first aim should be to heal and cure the sick," writes Dr. Kennedy. This job and this aim are the focus of the practising doctor's work. Does the National Health Service provide "a system" which, with minor imperfections inseparable from any activity, enable the job to be done and the aim to be fulfilled in the best way possible? Dr. Kennedy and Dr. Grant have doubts which probably others share.

TUBERCULOSIS AFTER B.C.G. VACCINATION

Progressive tuberculosis can certainly occur in previously tuberculin-negative persons who have been recently vaccinated with B.C.G. with apparent success, as judged by tuberculin conversion and sizable vaccination lesions. Sporadic local complications due to the B.C.G. infection, even including regional glandular abscesses (occasionally erroneously diagnosed as due to Koch's bacillus by an observer unaware of the facts), should be excluded from consideration of how such a progressive infection develops; so should disease that follows a natural infection occurring just before vaccination or a few weeks afterwards during the "pre-allergic" phase, and also disease due to reinfection occurring some years later when protection may be expected to have waned. The following remarks are thus mainly concerned with exogenously caused tuberculosis due to inadequacy of protection, and with progressive lesions apparently due to the B.C.G. itself.

No one now believes that B.C.G. vaccine gives complete protection, and a study of tuberculosis from human or bovine sources in the vaccinated has little statistical meaning unless the number observed is related to the number vaccinated, and unless this proportion is further seen in relation to similar observations on comparable unvaccinated persons. However, even the bare description of tuberculous manifestations in those known to have been recently and successfully vaccinated can provide information on

[1] Ustvedt, H. J., *Bull. Wld Hlth Org.*, 1950, **2**, 469.
[2] *Acta tuberc. scand.*, 1951, *Suppl.* No. 27. See *British Medical Journal*, 1952, **1**, 147.
[3] *Tubercle* (*Lond.*), 1948, **29**, 245.
[4] Dahlström, G., *Acta tuberc. scand.*, 1953, *Suppl.* No. 32.
[5] *Ärztl. Wschr.*, 1954, **38**, 893.
[6] *Acta tuberc. scand.*, 1936, **10**, 83; 1937, **11**, 257; 1946, **20**, 1.
[7] *Brit. J. Derm.*, 1954, **66**, 121.
[8] *J. Amer. med. Ass.*, 1954, **155**, 61.
[9] Øster, R., *Ugeskr. Læg.*, 1953, **115**, 342.
[10] Imerslund, O., and Jonsen, T., *Acta tuberc. scand.*, 1954, **30**, 116.
[11] Meyer, J., *Ugeskr. Læg.*, 1953, **115**, 1024.
[12] Meyer, J., and Jensen, K. A., *Amer. Rev. Tuberc.*, 1954, **70**, 402.
[13] Thrap-Meyer, H., *et al.*, *Acta tuberc. scand.*, 1954, **29**, 173, 180, 188.
[14] Hollström, V. E., and Hård, S., *Acta derm-venereol.* (*Stockh.*), 1953, **33**, 139.
[15] *Amer. Rev. Tuberc.*, 1955, **71**, 321.
[16] Vorwald, A. J., *et al.*, ibid., 1950, **62**, 455.
[17] *J. exp. Med.*, 1955, **101**, 59.

two points—the frequency of different types of case and the time of their onset. When tuberculin sensitivity due to B.C.G. has developed (usually about two months after vaccination), clinical primary tuberculosis is much reduced in frequency, though a primary focus can still result from superinfection.[1] If Dahlström and Dif's[2] figures for 36,000 B.C.G.-vaccinated Swedish soldiers are broken down so as to show tuberculosis with onset between 6 and 12 months after vaccination—when protection might be expected to be maximal—the number of all cases was 39 (but there were 105 at a corresponding time among the 25,000 unvaccinated in their series). Of these 39 cases, 10 were classified as of primary tuberculosis (as against 42 of the 105) and 29 as of post-primary tuberculosis. The primary forms were composed of primary complexes, hilar tuberculosis, and erythema nodosum; while the post-primary cases—following the conceptions in Wallgren's[3] "time-table" of tuberculosis—consisted of pleurisy (21), pulmonary tuberculosis (6), and other types (2). There were no cases of meningeal or miliary tuberculosis during this period among the vaccinated (but 11 in the unvaccinated). The prognosis of some forms of tuberculosis—for example, of primary disease and pleurisy, but not of post-primary pulmonary tuberculosis—was better when they occurred in vaccinated than in unvaccinated individuals in this series.[4] Differentiation between primary and post-primary pulmonary tuberculosis, however, is often difficult and may be of doubtful value.

Simon[5] obtained somewhat different results, for in a German children's clinic he saw 13 children who developed tuberculosis between 3 and 24 months after apparently satisfactory vaccination accompanied by proved tuberculin conversion. These 13 included 2 cases of hilar adenitis, 1 of pleurisy, 6 of pulmonary tuberculosis (4 with cavitation), 1 of miliary tuberculosis, and 2 of meningeal tuberculosis. Simon concluded that almost all forms of tuberculosis can appear after B.C.G. vaccination, even when immunity can definitely be postulated. The proportion of his cases with pulmonary tuberculosis is higher than in some series; and the occurrence of miliary and meningeal disease is of unusual interest, since, as Ustvedt[1] remarks, although indirect evidence suggests that the frequency of these forms in particular is reduced by B.C.G. vaccination, this has not yet been shown statistically in a convincing way. The clinical onset of meningitis in Simon's two cases was 16 and 24 months after vaccination, and it is therefore unlikely that the children were infected before the effect of vaccination had developed. The author attributes the failures of protection by vaccination to various factors, including constitutional defects, coexisting other infections or metabolic disorders, and, particularly, to massive reinfection. The progress of the tuberculous disease was similar to that expected in unvaccinated children.

As anticipated by Jensen[6]—who pointed out that B.C.G. has the same order of virulence as some strains isolated from natural lupus vulgaris—B.C.G. has been reported, though very rarely, to produce lupus in and around the vaccination site. Marcussen[7] has reviewed the three previous cases in the literature and added three more of his own; he believes these infections to have been caused by the B.C.G. and not by superinfection from man or milk. A seventh case has since been described by Ødegaard,[8] who suggests that revaccination at the original site of vaccination may be a predisposing factor. Response to treatment is similar to that of natural lupus. Progressive systemic lesions caused by B.C.G. through haematogenous or lymphatic spread have also been reported, again rarely; these include abscess of the knee-joint,[9] multiple bone lesions with lupus vulgaris,[10] and three fatal cases of generalized B.C.G. tuberculosis.[11 12 13 14] That most of these more recent cases come from Scandinavia must be ascribed to the large numbers vaccinated there and the thoroughness of observation and documentation. The reason for their occurrence has been speculatively attributed to poor individual resistance—for instance, from transient causes such as measles[10] or from constitutional deficiency.[11 12] As James[15] points out, the old fear that the attenuated B.C.G. might regain the virulence of its ancestral bovine strain is not supported, for no ill effect was seen in other children receiving the same batch as did Meyer's[11 12] patient, and the tubercle bacilli recovered from the latter showed the same low virulence as B.C.G. when tested in guinea-pigs. The production of progressive lesions by B.C.G. has its experimental counterpart. Thus in silicotic guinea-pigs infected with B.C.G. the organisms were rendered pathogenic and the animals died with silico-tuberculosis, but it is significant that here too the virulence of the B.C.G. when recovered was unaltered.[16] More recently Dubos[17] has shown that experimental B.C.G. infection could become generalized and fatal in mice whose resistance was reduced by dietetic means. The fact that B.C.G.-produced tuberculosis can occur in man is clearly of great interest, but the danger is too remote to be alarming. Nevertheless, while apparently rare, these cases are likely to be noted more frequently now that attention has been drawn to their existence.

WORLD FIGHT AGAINST DISEASE

In the world political situation, oppressed and threatening, full of antagonisms and mistrust, the Annual Report of the Director-General to the World Health Assembly and to the United Nations[1] comes as a cool refreshment. It is as though the word "international" had been taken out of its murky context and given a thorough cleaning. The report (which unfortunately has no index) contains a list of over three hundred major health projects being carried out in 1954—20 of them in Africa (the continent in which the work of W.H.O. seems to have been least developed), 58 in the Americas, 66 in south-east Asia, 62 in Europe, 72 in the eastern Mediterranean, and 51 in the western Pacific. They include surveys, seminars, the founding of institutes and schools, field missions, control measures, and much else, many of the projects lasting over several years. It is not difficult to illustrate from them the imaginative help that W.H.O. gives—a quarantine station for pilgrims at Jeddah, a five-year project in Tokyo to investigate the causes of prematurity and devise methods of preventing it, the control of bejel and syphilis in Syria, the teaching of pharmacy in the Sudan, the extension of mental health services in Jerusalem and Bethlehem, a midwifery school at Teheran, fellowships for training in cardiology in Yugoslavia, postgraduate education in public health in Athens, the establishment of a physiotherapy centre in Bombay, a school for male nurses in Afghanistan—all these together with innumerable operations to control disease, such as anti-malaria schemes, which were current in 20 countries in 1954, and assistance towards combating tuberculosis in 28.

Nevertheless, the aim of W.H.O. is not short-term campaigns, although many of its projects are in that category, but to strengthen the permanent structure of public health services in its eighty-three member-states. One encouraging feature, noted by Dr. Candau, the Director-General, is the growing acceptance of the idea of joint action between neighbouring countries. Regional efforts covering several countries are not only more effective as such but promote good relations. An instance of such co-operation is the establishment of an Inter-American centre of biostatistics at Santiago to serve the whole of Latin America, and another is a regional college of nursing in association with the University of Alexandria to raise the level of nursing in the Eastern Mediterranean area. The most outstanding co-ordination of national efforts last year was the campaign of the American countries represented at the Fourteenth Pan-American Sanitary Congress (which served also as the sixth session of the W.H.O. Regional Committee for the Americas) for a five-year plan to eradicate malaria for good and all from the Western Hemisphere.

Not only is W.H.O., with its panels of experts in thirty-three subjects, a complete organization in itself—a full-bodied one beside which the admirable Health Organization of the League of Nations appears in retrospect a mere wraith—but it works in collaboration with many other bodies. These include the Economic and Social Council and other branches of the United Nations, and non-governmental agencies, twenty-five in all. Among them is the World Medical Association, which is co-operating with W.H.O. in questions concerning the preparation of the *Pharmacopoea Internationalis*. Another is the Council for International Organizations of Medical Sciences; this has been making a critical assessment of the usefulness and potentialities of large international congresses and other types of scientific meetings.

W.H.O. looks back on six years' experience during which public health has covered the world map in a way it has never done before. This raises some wider problems of ecology. Much has been said about the possibility of contamination of air, soil, and water owing to the increased use of atomic energy. But that, if it is occurring, is only one of the obscure changes which may be working themselves out. To what extent may the balance of nature be subject to interference by the wholesale destruction of insects? Dozens of the projects which W.H.O. is sponsoring in various parts of the world have to do with insect control. Again, what will be the long-term results of the extensive use of antibiotics? How will the trends of disease in whole populations be influenced by the intense efforts to raise the standards of environmental sanitation? These are new questions, and only an organization of the compass and equipment of W.H.O. can in due course answer them and meet the challenge which some of them may make.

[1] *The Work of WHO 1954. Annual Report of the Director-General.* World Health Organization, Geneva. 10s. ($2).

GIANT CELLS IN MEASLES

The presence of giant cells in measles cases was first reported by C. Ciaccio[1] in 1910 and by G. Alagna[2] in 1911. Little interest was aroused until A. S. Warthin[3] in 1931 and W. Finkeldey[4] in the same year reported independently on a peculiar type of giant cell which they had found in the tissues of patients in the prodromal stage of the disease. Warthin, having noted these cells in tonsils removed at operation in one case, was able successfully to predict the onset of measles in three later cases in which he found the same type of cell. Since these reports the cells have often been described, and they are now generally known as Warthin–Finkeldey cells. They have been seen in tonsils, adenoids, lymph nodes, spleen, thymus, and appendix. They occur in the germinal centres of lymphoid tissue, and in the tonsil they have been found especially just beneath the surface of the crypts, where they can occur in very large numbers. Their appearance is so striking that Warthin suspected that his first case might be one of Hodgkin's disease or lymphoblastoma. The cells are round or irregularly lobed, and they have a variable number of nuclei, sometimes as many as 100. The nuclei never show a peripheral distribution and they

[1] Ciaccio, C., *Virchows Arch. path. Anat.*, 1910, **199**, 378.
[2] Alagna, G., *Arch. Laryng. Rhin. (Berl.)*, 1911, **25**, 527.
[3] Warthin, A. S., *Arch. Path. (Chicago)*, 1931, **11**, 864.
[4] Finkeldey, W., *Virchows Arch. path. Anat.*, 1931, **281**, 321.
[5] Denton, J., *Amer. J. med. Sci.*, 1925, **169**, 531.
[6] Bunting, C. H., *Yale J. Biol. Med.*, 1950, **22**, 513.
[7] Tompkins, M. D., and Macaulay, J. C., *J. Amer. med. Ass.*, 1955, **157**, 711.

are said to be commonly found as grape-like clusters in the centre of the cell. Often the cells are found in a degenerate stage, when they show strongly eosinophilic cytoplasm and pyknotic nuclei. The time of their appearance and disappearance is not known with certainty; they have been reported as early as four days after exposure to infection, and it seems certain that they will be present five days before the onset of the rash and that they persist for one or more days after the rash appears. Many views have been expressed about their origin—that they are formed by fusion of lymphocytes, that they originate by amitotic division of cells of the lymphocyte series, that they come from the reticulo-endothelial system, and that they are macrophages which have phagocytosed lymphocytes attacked by the measles virus. There is, however, general agreement about their specificity, and their appearance in lymphoid tissue has been used as a criterion of a successful experiment in the inoculation of monkeys with measles material.

Another type of giant cell has been described in measles, this time in respiratory epithelium, but the specificity of this cell is still under discussion. J. Denton[5] in 1925, in a report of a series of necropsies on fatal cases of measles, drew attention to a giant cell which he found in the bronchial epithelium; it had 5 to 20 nuclei, and cytoplasm which might be well preserved or might be degenerate. Other observers have confirmed his findings. In appearance these cells are usually stated to resemble fused epithelial masses in the earlier stages, and sometimes the normal cilia are retained. The presence of inclusion bodies in the cells has been reported, but not by all observers. At a later stage they become eosinophilic and the nuclei shrunken and pyknotic. Sometimes in these cases epithelial cells become fused into large sheets rather than into small syncytial masses, and such sheets have often been found lying free in the bronchi. A similar fusion of epithelial cells has also been noted in the intestinal mucosa. The specificity of this type of cell has often been questioned, and its relationship to the giant cells which may occur in other virus infections is not clear. Possibly these cells are identical with the giant cells found in so-called giant cell pneumonia, which itself can be associated with measles. C. H. Bunting[6] in 1950 found such cells lying free in the bronchi, and interest in them has been revived recently by M. D. Tompkins and J. C. Macaulay.[7] They have confirmed the finding of these cells in the bronchi in a fatal case and have also demonstrated them in smears made by the Papanicolaou technique from sputum obtained from children in the prodromal stage. Having found sputum difficult to obtain from children, they examined nasal secretion by the same technique, and found that the cells were regularly present in ten cases ranging from five days prodromal to the day of the appearance of the rash. If their findings are confirmed they will constitute an interesting application of diagnostic cytological methods, and the possibility of diagnosis in the prodromal stage might be of some importance in children's institutions and hospitals. It is probable, however, that as with other cytological methods only the positive results will be significant.

COUGH SYNCOPE

In 1876 J. M. Charcot first drew attention to the transient loss of consciousness which sometimes follows severe bouts of coughing in patients afflicted with paroxysmal cough.[1] He thought they were induced by irritation of the laryngeal nerves during cough, and, from analogy with Ménière's syndrome, called the attacks "laryngeal vertigo." Subsequently the condition has been described under a variety of different titles, and it has been a popular diagnosis on the Continent for many years. It has not been so widely recognized in Britain, but, as C. Baker affirmed in describing nine cases, it is as common here.[2] The attacks usually afflict middle-aged men suffering from chronic bronchitis; thick-set people addicted to tobacco and alcohol are particularly prone. After a bout of severe unproductive coughing the patient momentarily loses consciousness; he may fall to the ground and perhaps twitch. Full consciousness quickly returns and the patient carries on as though nothing untoward had happened. In less severe attacks the patient experiences dizziness or temporary mental clouding but does not become unconscious. The mechanism of syncope after coughing was studied by E. P. Sharpey-Schafer.[3] He found that unconsciousness occurred at the end of the coughing attacks just when the arterial blood pressure was at its lowest and the intrathoracic (and therefore the venous) pressure at its highest. Thus he concluded that syncope resulted from cerebral anoxia due to diminished blood flow through the brain. In some patients, however, syncope is preceded by only a single short cough, and it seems likely that these are cases of primary epilepsy having cough as an epileptic aura.[4]

The importance of recognizing this benign disorder is to exclude more serious causes of loss of consciousness. Once the characteristic clinical history is known, diagnosis is a simple matter, but the patients are not always aware of the association between coughing and syncope until closely questioned. Although cough syncope is almost confined to middle-aged men, it may sometimes present a difficult diagnostic problem in childhood, and J. M. Sutherland[5] has recently described the disorder in a child of 9 years.

Treatment should aim at preventing the paroxysms of cough. Reduction of smoking and carrying out breathing exercises are sufficient in some cases; sometimes a clear explanation that coughing is the direct cause of the attacks will encourage patients to change their bad habits. Weight reduction and sedatives are also of some help. Nevertheless, many patients continue to have attacks in spite of treatment, and the loss of consciousness is not only distressing but may also be a source of danger both to the patients and to others.

We record with deep regret the death on April 26 of Dr. Egbert Coleby Morland, who joined the staff of the *Lancet* in 1915 and was its editor from 1937 to 1944. He was 80 years of age.

[1] Charcot, J. M., *Gaz. méd. Paris*, 1876, **5**, 588.
[2] Baker, C., *Guy's Hosp. Rep.*, 1949, **98**, 132.
[3] Sharpey-Schafer, E. P., *British Medical Journal*, 1953, **2**, 860.
[4] Whitty, C. W. M., ibid., 1949, **2**, 311.
[5] Sutherland, J. M., *Glasg. med. J.*, 1954, **35**, 335.

EMERGENCIES IN GENERAL PRACTICE

"THE BLEEDER"

BY

R. G. MACFARLANE, M.A., M.D.

Clinical Pathologist and Radcliffe Lecturer in Haematology, Radcliffe Infirmary, Oxford

The first experience of bleeding which cannot be controlled by conventional treatment is alarming for both patient and doctor. This alarm, which is seldom justified by any immediate danger of exsanguination, is largely due to what seems an unnatural occurrence. We are so used to the fact that minor injuries stop bleeding spontaneously that automatic haemostasis is taken for granted. Yet, since the circulating blood is subject to the ordinary laws of hydrostatics, it is actually one of the many biological mysteries.

The mechanism responsible is only partly understood and is of great complexity. Its components are the coagulation of the blood, the contraction of injured vessels, and the adhesion of the platelets, these events being probably closely integrated and to some extent interdependent. The important fact is that any serious defect in their operation will result in prolonged bleeding from even trivial injuries, and only when attempts are made to arrest this is it realized how dependent we are upon the normal mechanism. Dressings, tight bandages, plugging, and sutures are all useless; the blood seeps through them as if it were water, or, worse, if its free escape is prevented it infiltrates the tissues. Bleeding can be arrested by the application of pressure to cut off the blood supply to the injured area, but this cannot be maintained for long without causing necrosis and an extension of the area of bleeding. The usual methods for arresting haemorrhage act only by assisting the physiological mechanism; they cannot replace it.

Temporary pressure is normally useful, as it allows time for vessels to contract and for a firm clot to form. Dressings accelerate normal clotting by providing a large surface and also reinforce the clot; sutures close a wound cavity, so that the clot has the greatest occlusive effect. But if the clot fails to form, or the vessels to contract, these measures are ineffective and may be positively dangerous. It is therefore important for the doctor to recognize when he is dealing with haemorrhage due to these failures, and it must be emphasized that, unless the bleeding can be readily controlled by the methods described in this article, the patient should be transferred to hospital without delay. The recent establishment of regional "haemophilia centres" for the diagnosis and treatment of the haemorrhagic states is likely to assist greatly in the efficient hospital treatment of these conditions.*

Diagnosis

Fortunately, bleeders, or those of them who bleed dangerously on slight provocation, are rare. Haemophilic subjects, who, because of the severity of their disability, form the most important group, occur in the proportion of only 1 or 2 per 100,000 of the population of this country. But there are other conditions which cause abnormal bleeding, and, since their appropriate treatment differs, the doctor should know what sort of case he has to deal with.

Briefly, the haemorrhagic states can be divided into those due to defective coagulation and those due to abnormalities involving the vessels or platelets; these two groups can each be subdivided into constitutional conditions, often hereditary, and acquired conditions, often secondary to some underlying disease.

It must be first decided whether excessive bleeding is merely due to a locally overtaxed but otherwise normal haemostatic system or to one of these haemorrhagic states. Persistent bleeding may occasionally occur in normal people; after tooth extraction, for example, it may go on for perhaps 24 hours; epistaxis due to local vascular erosion may be prolonged or frequently repeated; secondary haemorrhage from infected wounds is due to proteolytic digestion of blood clot and tissues; and in uterine bleeding the bounds of normal are notoriously hard to define. But these episodes can usually be distinguished from the bleeding of the haemorrhagic states by the patient's history, and from certain features of the bleeding itself. If the patient has experienced previous injuries or operations such as tonsillectomy without serious haemorrhage, he is unlikely to have a constitutional haemorrhagic state.

The genuine bleeder almost always has a long history, often going back to infancy, of prolonged bleeding not limited to one particular part of the body, but from any minor injury or operation site, and in the form of epistaxis, gastro-intestinal bleeding, easy bruising, purpura, or the formation of haematomas and swellings of the deep tissues and joints, and so on. A point of diagnostic value is the occurrence of similar troubles in other members of the family. Symptoms which might be equivocal by themselves become significant if they also occur in blood relations.

The bleeding itself may give information on the type of defect which has caused it. In cases of defective clotting the vessels are usually normal, and bleeding does not occur unless they have been damaged. In such cases, following an injury which might have been thought trivial by ordinary standards, there is often only slight bleeding at first which may even cease for some hours; it then begins again and becomes uncontrollable, sometimes continuing for days and even weeks. Haemorrhage into the tissues occurs usually after a blow or strain, producing massive haematomata involving any part of the body, particularly the muscles and joint cavities.

Bleeding due to vascular or platelet abnormalities, on the other hand, is often spontaneous and is mainly limited to the skin and mucous membranes. Petechiae and ecchymoses appear without obvious cause; bleeding from the nose and gums is common, being a diffuse oozing without any definite bleeding point; gastro-intestinal bleeding and menorrhagia may be dangerously profuse. It is characteristic of these purpuric conditions that even small needle punctures bleed persistently.

Further differentiation may be obtained by considering the characteristics of some of the different members of the two groups of haemorrhagic conditions, but only the commoner conditions are described here.

All types of clotting disorders tend to produce a similar symptomatology. In the constitutional group both haemophilia and Christmas disease (also called haemophilia A and haemophilia B respectively) are inherited as sex-linked

*See *British Medical Journal*, 1954, 2, 1287.

recessive conditions, affecting only males and being transmitted through apparently normal females. They cannot be distinguished by clinical findings alone.

In the group of acquired clotting defects there is a haemophilia-like state occurring in females which is due to an anticoagulant in the blood, developed during or after pregnancy, perhaps as an immune reaction. An acute fibrinogen deficiency may also occur with disastrous rapidity in some cases of premature detachment of the placenta, with uncontrollable uterine and sometimes generalized bleeding. It is due to the intravascular entry of placental fragments which cause the removal of fibrinogen from the circulating blood. Lastly, the widespread use of the coumarin drugs in the treatment of thrombosis produces a few cases of overdosage, with external and internal haemorrhage due to factor 7 and prothrombin deficiency.

Of the purpuric conditions the commonest is secondary thrombocytopenic purpura, which is often due to drug sensitivity, leukaemia, aplastic anaemia, or carcinomatosis. In a smaller group of cases the thrombocytopenia is apparently essential.

Principles of Local Treatment of External Bleeding

When the bleeding point is accessible local attempts can be made to produce a firm clot. However, even the most rapid clotting cannot extend against a flow of blood, since the fibrin will be washed away from the bleeding point. It is therefore essential to arrest the blood flow by pressure or by stimulating vascular contraction. If clotting is defective it will also be necessary to apply a coagulant, of which the best is thrombin. If used in sufficient concentration, solutions of thrombin will clot in a few seconds any blood that contains fibrinogen. Another useful coagulant is Russell's viper venom. It is more active than thrombin in low concentrations, except in cases of prothrombin deficiency, but like thrombin will not clot blood lacking fibrinogen.

The best way of applying these coagulants is by means of a dressing saturated with the solution. But as ordinary gauze or cotton-wool packs have eventually to be removed and this often restarts the bleeding, an absorbable dressing such as "oxycel" or "calgitex" should be used. These become pliable and adhesive when moistened, and can be accurately moulded to the bleeding point and left in position until digested.

Treatment of Specific Haemorrhages

Epistaxis

Since epistaxis often stops spontaneously drastic measures should not be undertaken unless the blood loss is serious. In cases of defective clotting the bleeding point is likely to be on the anterior part of the septum, where it may be seen and dealt with directly. A pad of oxycel or calgitex gauze, a few millimetres square, should be soaked with thrombin or viper venom, applied to the bleeding area, and held there by the gentle pressure of the flat handle of a scalpel or some similar instrument. After four to five minutes the instrument is removed, leaving the dressing adhering to the bleeding site. If this is effective the dressing should be left alone until it comes away naturally. If it fails, the process should be repeated, but great care should be taken not to damage the membranes of the nose and start new areas of bleeding. Thermal or chemical cauterization should never be used in these cases. If the bleeding point cannot be seen, a mixture of thrombin solution and 1/1,000 adrenaline in equal parts can be sprayed into the nose with an ordinary atomizer; the anterior nares are then plugged with gauze and the patient holds his head forward, so that a firm clot forms in the nasal cavity. He should refrain from swallowing during this proceeding, or the clot may be dislodged. No attempt should be made to plug the posterior nares. If bleeding is not stopped further local treatment should be abandoned, since it is likely to do more harm than good. The patient should lie so that the blood does not run back into his throat and cause vomiting, and often bleeding will cease before a dangerous amount of blood has been lost. If it still continues, arrangements should be made for transfer to hospital.

Epistaxis in the purpuric conditions is usually a diffuse oozing which is difficult to control but seldom profuse enough to be dangerous. Plugging is often useless, and fresh bleeding points may be started at the slightest touch. A thrombin–adrenaline spray may be effective, and an ice pack applied to the nose may also be tried.

Bleeding Tooth Sockets

Dental extraction occasionally reveals for the first time that the patient is a bleeder. It need hardly be emphasized that good conservative dentistry is particularly important for such patients; unfortunately their teeth are often grossly and needlessly neglected.

In dealing with tooth sockets the object is not merely to stop the bleeding but to avoid delaying healing, since haemorrhage is likely to recur until this is complete. Tight plugging should not be used, therefore, as it causes eversion of the socket, nor clamping of the jaw with tight bandages, which may cause necrosis of the gum, nor caustics and styptics, as they destroy the tissues. In cases of defective clotting the gum margins should never be sewn together, since the blood, unable to escape, may infiltrate the tissues of the tongue and throat and cause fatal asphyxia.

A method which is applicable to almost all haemorrhagic states is as follows. A pledget of oxycel or calgitex, about the size of a marble, is soaked with thrombin or venom solution, and moulded into the shape of a mushroom. Any loose blood clots are washed away from the socket and the stalk of the "mushroom" is lightly pressed down into the cavity, the head fitting over the edges of the socket. A cotton-gauze swab or pack of the size required to fill the gap between the socket and the opposing teeth is then applied over the dressing and firmly pressed into position by the thumb and forefinger, which should also squeeze the edges of the socket together. This pressure must be maintained for at least five minutes and relaxed without dislodging the cotton pack. The patient can then close his jaws and if the pack is properly placed the bite should hold it in position without excessive pressure. In almost every case this procedure will stop the bleeding for several hours at least, though it is then apt to restart owing to digestion of the clot. It is a great advantage to have a small dental splint made which, better than the cotton pack, will hold the coagulant dressing firmly in place. Dressing with new applications of coagulant can be repeated once or twice in the 24 hours as required, but no attempts more drastic than these should be undertaken to control the bleeding. If it becomes dangerous the patient will require admission to hospital and transfusion.

Open Wounds

In cases of defective clotting, an open wound should be treated in much the same way as a tooth socket. It should be cleaned carefully and, if the edges fall together naturally, irrigated with thrombin or venom solution, and a pad of oxycel or calgitex, soaked with coagulant, laid over it. This is then covered with cotton gauze bandaged firmly in place, and manual pressure applied for five minutes. If bleeding recurs a repetition of the process should be carried out. If the edges of the wound tend to gape they can be partly drawn together by strapping, after lightly packing and covering with absorbable dressing and coagulant. The strapping should not be so tight as to prevent the escape of blood to the surface. When healing is complete the strapping can be removed without damaging the skin, by soaking it in a mixture of equal parts of liquid paraffin and petroleum ether. Wounds should not be stitched in cases of haemophilia or Christmas disease, though it may be necessary to ligate large bleeding vessels. Prolonged pressure, cauterization, or diathermy should never be employed, as subsequent sloughing inevitably causes bleeding from a larger area than before. If injections of tetanus antitoxin or antibiotics are

considered essential they should not be given intramuscularly since they may cause serious local haemorrhage. Intravenous injections can be made with less risk of bleeding, but the danger of anaphylaxis must always be remembered.

In the purpuric conditions bleeding from skin wounds can usually be controlled by temporary pressure and a firm dressing. There is not the same danger of haematoma formation in these states, so that suturing is not contraindicated.

Internal Bleeding: Deep-Tissue Haemorrhages

Extensive bleeding into the tissues is common in haemophilia and its related conditions, and may involve a whole limb or half the trunk. Serious pressure effects and dangerous loss of blood may therefore occur. Unfortunately little can be done to limit these haemorrhages. As soon as it becomes obvious that bleeding is taking place the part should be put at rest and elevated if possible; local application of ice packs has been recommended. Pressure dressings are not of much use unless the haematoma is small and is overlying bone; a haematoma of the scalp can be restricted, for instance, by a pad of "sorbo" rubber and a firm bandage. Haematomata should never be incised; the blood is almost always interstitial and cannot be evacuated by surgical means, and the incision itself becomes a new source of bleeding.

The most dangerous site for tissue bleeding is into the tongue and throat, because any swelling here interferes with the airway, sometimes with devastating rapidity. As soon as it is diagnosed arrangements should be made for the immediate transfer of the patient to hospital, where facilities are available to pass an endotracheal tube. The doctor must travel with him and be ready to pass an oral airway (as used by anaesthetists) to separate the tongue from the posterior pharyngeal wall, or failing this to pass a shortened rubber endotracheal tube through the nose, so that the tip passes beyond the obstruction and lodges at the level of the entrance to the larynx. If respiratory obstruction threatens it is a misplaced kindness to give morphine to relieve the patient's distress. His survival for the time being depends on vigorous respiratory efforts on his part, and the administration of any respiratory depressant can have fatal results.

Bleeding into the spinal cord, with signs of increasing compression, may occur, and demands immediate admission of the patient to hospital. Diagnostic difficulties are produced by retroperitoneal haemorrhages which may cause abdominal pain, tenderness, rigidity, vomiting, and fever. Such cases have been frequently misdiagnosed as appendicitis or a perforated ulcer, and the significance of abdominal symptoms in a patient known to be suffering from a haemorrhagic state has therefore to be considered with great care. Operation is justified only if it is certain the patient will die without it.

Haematemesis should be treated in the normal way. Haematuria, which may sometimes be prolonged for many days in patients with haemophilia and Christmas disease, can be treated only by rest and transfusions.

Haemarthroses are frequent in haemophilia and its related conditions, and the joint destruction which follows is the cause of much disability. In the acute phase the joint is extremely painful and morphine may have to be given, although non-habit-forming analgesics are preferable. The affected joint should be elevated and immobilized in a slightly flexed position. Ice packs are sometimes comforting.

General Treatment

Haemophilia and Related Conditions

Correction of the specific clotting defects cannot easily be carried out in the patient's own home. In haemophilia the blood defect can be temporarily corrected by transfusions of several pints of normal blood or plasma, which must be given within a few hours of its collection from the donor, as the active factor is very labile. Concentrated preparations derived from human and, quite recently, from bovine blood are being tested clinically, and it may be that in the near future they may be made generally available. If this hope is fulfilled then many of the local measures described here for the treatment of haemophilia will happily become obsolete.

In other clotting defects it is probable that amounts of fresh blood similar to those now necessary in haemophilia are required for efficient treatment; a possible exception is Christmas disease, in which it appears that stored blood or serum may be effective and that relatively smaller amounts are needed.

Apart from its effect on clotting, the patient may need a transfusion to restore a dangerously depleted blood volume, possibly before removal to hospital. If the blood pressure is falling alarmingly, the practitioner himself may be able to give a transfusion of 1 or 2 pints (about a litre) of reconstituted dried human plasma, or 1 or 2 pints of dextran solution, neither of which involves grouping or cross-matching, but a blood sample for grouping and cross-matching must be taken before giving dextran, as this substance interferes with grouping technique. Cutting down on a vein must be avoided if humanly possible; destruction of available veins by irresponsible transfusion technique may cost the patient his life when another transfusion is needed. No general treatment of the constitutional clotting defects other than blood transfusion or the injection of the specific blood fractions has been found to be effective.

Acquired Clotting Defects

In cases of haemorrhage due to overdosage of one of the dicoumarin group of drugs, immediate contact should be made with the hospital which is undertaking laboratory control of the patient's treatment. An adequate dose of vitamin K_1 should be given as soon as possible. An oral preparation is "konakion," which acts in a few hours. If the doctor is in the habit of collecting blood samples for prothrombin determination he should take a sample before giving the vitamin K_1.

Bleeding due to fibrinogen deficiency or the acute defibrination syndrome which may rarely complicate cases of premature detachment of the placenta must be treated with massive blood transfusion and, if it can be obtained, by injecting intravenously about 2 g. of human fibrinogen in solution.

The Purpura Group

In thrombocytopenic purpura the first essential to general treatment is diagnosis, which in most cases requires laboratory investigation. Leukaemia, aplastic anaemia, sensitivity to drugs such as "sedormid," quinine, or even aspirin, or to certain chemicals, are the commonest causes, and these, when identified, must be treated by the appropriate means. In idiopathic thrombocytopenic purpura splenectomy gives the best chances of recovery. If splenectomy fails, or as a preparation for operation, a course of cortisone sometimes leads to considerable clinical improvement. Purpuric bleeding may occasionally be arrested by transfusion of fresh blood.

I have discussed the relevant parts of the treatment described in this article with Sir Robert Macintosh and Mr. G. Livingstone, of the Departments of Anaesthetics and Otolaryngology, Radcliffe Infirmary, and Dr. J. Grant, of the Oxford Regional Blood Transfusion Centre. I am most grateful for the advice they have given me.

Next article on Emergencies in General Practice.—"Antepartum Haemorrhage," by Mr. F. Stabler.

Refresher Course Book.—Copies of the second volume of collected articles from the Refresher Course for General Practitioners published in the *Journal* are still available at 25s. (postage 1s.) each. The volume contains 60 articles, all of which were revised by their authors for publication in the book. The first volume is now sold out and out of print. Copies of the second volume may be obtained from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1, or through any bookseller.

SIGNIFICANCE OF SYMPTOMLESS HYPERTENSION

A CIBA FOUNDATION CLINICAL FORUM

[FROM A SPECIAL CORRESPONDENT]

"Symptomless Hypertension" was the subject of the Ciba Foundation's fourth Quarterly Clinical Forum last month, held under the chairmanship of Lord HORDER. In his introduction Lord Horder made a plea for the suppression of the word "malignant" as a description for certain forms of hypertension. He suggested also that the use of the term "essential," by concealing ignorance of the subject, might of itself constitute a possible bar to progress. The four main speakers were a cardiologist (Dr. PAUL WOOD), a clinical scientist (Professor G. W. PICKERING), a general practitioner (Dr. M. D. RAWKINS), and a doctor concerned with life insurance (Dr. T. W. PRESTON).

High blood pressure by itself results, as Dr. PAUL WOOD pointed out, in few or no symptoms, and it is only when neurological, retinal, cardiac, or renal complications supervene that symptoms appear. In that sense uncomplicated hypertension is always symptomless. The problem which faced the Clinical Forum was the assessment of the prognosis and need for treatment in patients found to have raised blood pressure at the time of a routine examination or when being examined for some unrelated disability. The controversial issue of what level of systolic or diastolic blood pressure merits a diagnosis of hypertension was not raised.

Prognosis

Professor PICKERING stressed that the level of blood pressure was progressively graded throughout the population in all age groups, and therefore no dividing line could be drawn between normal and pathological levels. The prognosis in patients with symptomless hypertension taken as a group is undoubtedly poorer than in the population as a whole, as has been demonstrated by Bechgaard's series in Sweden and the figures of the Actuarial Society of America. The prognosis declines progressively as the level of blood pressure rises. Although this generalization applies to the group taken as a whole, there is great individual variation in prognosis within the group. Thus, attention was drawn to the well-recognized fact that the prognosis for a given level of blood pressure is better in older than in younger people, and best of all in post-menopausal women.

Even in patients of similar age, sex, and blood-pressure level the prognosis may be widely different. In explaining the actuarial standpoint, Dr. PRESTON made it clear that no allowance in loading could be made for these individual variations in future behaviour, since at any given stage there was no known way of forecasting how the process would develop in the individual. However, actuaries were prepared to accept as "good risks" older people with a level of blood pressure in the presence of which, if occurring in younger people, they would have insisted on loading the premiums or rejecting altogether.

No conclusions were reached on the importance of transient rises in blood pressure observed particularly in younger people at the time of the first examination. The attitude of insurance doctors to these fluctuations is variable and the proposer may be accepted at normal rates. However, there is evidence that these cases taken as a group are more likely to develop sustained hypertension, although, as Dr. RAWKINS remarked, general practitioners are well aware that there are individuals within this group who show no rise in blood pressure when followed for very many years. Dr. Rawkins drew attention to the great importance of excluding underlying and possibly remediable causes for hypertension occurring in the younger age groups.

Two problems under the heading of prognosis are outstanding. Firstly, how can the course of the blood-pressure changes be predicted in the individual? No answer to this was forthcoming from the Forum. Secondly, why is it that some people develop symptoms when others do not at the same level of blood pressure? Since the symptoms of the complications of hypertension depend, with the possible exception of heart failure, on vascular degenerative processes, Dr. H. DE WARDENER suggested in the discussion that emphasis might well be shifted away from the concept of the primacy of the level of blood pressure in hypertension towards the study of the behaviour of arteriolar wall under the stresses of hypertension. Professor K. J. FRANKLIN also advocated a further study of arteriolar smooth muscle and of the peripheral nervous system in relation to hypertension. If some way could be found of determining experimentally how arterioles would withstand raised intravascular pressure, it is possible that this might provide a clue to the liability of complications in an individual developing a raised blood pressure.

Selection of Cases for Active Treatment

The problem of the treatment of symptomless hypertension is still a vexed one. The life insurance doctors had naturally little to say about this, but it was cheering to hear that they realized how often they were the unwilling begetters of many anxiety states in patients who for the first time were made aware that their blood pressures were elevated. In the great majority of cases of symptomless hypertension the prognosis is to be measured in years or decades, and a decision whether or not to treat with active vasodepressor drugs may be extremely difficult. Such treatment has to be continued indefinitely, and in view of its inherent side-effects the patient may be handicapped for years, at the end of which time the clinician may be in doubt about whether the survival has been longer than it would have been without treatment. Both Professor J. MCMICHAEL and Professor M. L. ROSENHEIM expressed the view that patients with symptomless hypertension should not be treated, for there is no evidence at present that this improves the prognosis. On the other hand, Dr. PAUL WOOD advocated treatment if the E.C.G. indicated myocardial involvement. The Forum was certainly not prepared to lay down any general rules for the selection of patients with symptomless hypertension for treatment, and for the time being it is clear that each case must be judged on its own merits after an adequate period of observation. A carefully controlled clinical trial of vasodepressor drugs in this type of case was called for by Professor PICKERING. Such a trial would be most difficult to conduct, since it would extend over many years, during which time patients would have to be under constant supervision.

POLIOMYELITIS VACCINE

AMERICAN TRIALS IN 1954

The Salk vaccine tested in the U.S.A. by means of clinical trials in 1954 was found to have been about 60–90% effective against paralytic poliomyelitis. While it is not possible to give simple numerical expression to the effectiveness of the vaccine, the report,* published in the U.S.A. on April 12, suggests these figures as an estimate of the vaccine's success.

Plans for Tests

Cases of poliomyelitis appeared with greater frequency in some areas of the U.S.A. than in others during recent years. Therefore, as a preliminary to testing the Salk vaccine, areas with a consistently high incidence of poliomyelitis were noted, and in these areas two distinct but concurrent trials were carried out. In one of them uninoculated children were used as controls; in the other the controls were children inoculated with a substance other than the vaccine and having "no influence on immunity to poliomyelitis." The "observed control study," as the first was

**Evaluation of 1954 Field Trial of Poliomyelitis Vaccine*, Vaccine Evaluation Centre, University of Michigan, U.S.A., April 12, 1955.

called, covered 127 areas of 33 states, and the other, the "placebo control study," covered 84 areas of 11 states.

In the observed control study children in the first, second, and third grades of the public (state) schools were identified, and 221,998 children in the second grade received complete vaccinations. These comprised 62.4% of the second grade, and 20.5% of the children in all three grades. As controls, 725,173 children of the first and third grades were used. Certain statistically significant differences were noted between the vaccinated and the unvaccinated in the second grade. For instance, frequency of vaccination against other diseases was strongly correlated with participation in this trial, and the families of those participating were on the average better off financially than those not participating.

In the placebo control study the children in grades one, two, and three were taken together, numbering 749,236, and, of this number, 200,745 received the complete series of vaccine injections and 201,229 complete placebo injections.

Three injections of 1 ml. were given intramuscularly, the second a week after the first and the third four weeks after the second. Vaccinations took place during April 26–June 17, 1954. Elaborate arrangements were made for reporting cases and virological testing. As soon as possible after a case was diagnosed a summary of the clinical history and signs (including the state of the cerebrospinal fluid) was entered on a special form, which was sent to an evaluation centre. No case was admitted to the study unless the form was duly completed and the diagnosis acceptable at that stage. As early as possible a specimen of stool (or two) and a specimen of blood were sent promptly to the designated laboratory in the patient's area; the blood and a second specimen taken three to four weeks later were used for antibody titrations. The stools were studied for presence of poliomyelitis or other virus. Virus isolation, from stool specimens chiefly, was attempted in monkey kidney cells or HeLa cells. A negative specimen was retested at least once. Some specimens were also tested by inoculation of monkeys. Ten to twenty days after the onset of illness a physiotherapist examined the patient, and recorded in a predetermined classification any muscle disability found. The examination was repeated 50–70 days after onset. Post-mortem examination was held on patients who died.

These arrangements were not fully carried out: in the placebo control study, for instance, 13.1% of cases did not have their stools tested, while the figure was 17.3% for the observed control study. Likewise, serological tests were not done in 18.7% of patients in the placebo control study and 15.7% in the observed control study.

Incidence of Poliomyelitis in Study Areas

The number of cases of poliomyelitis reported in the U.S.A. in 1954 was about the same as the average of the previous five years. In the trial areas, which had been selected because the incidence had previously been higher there than elsewhere, the attack rates exceeded those of the rest of the country by 11% in the placebo control areas and 36% in the observed control areas, respectively, or 26% in all trial areas combined. Even so, this percentage was 18% below the previous five-years average for these areas. In the areas excluded from the study the incidence was 4% higher than the five-years average. The following table from the report (here Table I) compares the incidence of poliomyelitis in the trial and the non-trial areas.

TABLE I.—*Comparative Incidence of Poliomyelitis in Trial and Non-trial Areas, 1954*

Area	Reported Cases —All Ages			Case Rate per 100,000 Population	
	Average 1949–53	1954	% Change	Average 1949–53	1954
U.S. total	39,468	38,768	−1·8	25·7	24·1
All study areas ..	10,199	8,341	−18·2	33·2	28·9
Placebo control ..	4,293	3,133	−27·0	28·9	25·6
Observed ,, ..	5,906	5,208	−11·8	37·3	31·3
Non-study areas ..	29,269	30,427	+4·0	23·9	23·0

Paralysis Closely Following Vaccination

The data were examined to see whether it was probable that vaccination itself had given rise to poliomyelitis. In all, 129 cases of presumed poliomyelitis were reported during the vaccination period or up to four weeks after vaccination. There was "no evidence of disproportionate frequency of paralytic poliomyelitis in vaccinated or inoculated children up to four weeks after the completion of vaccinations, nor was there any indication of selective localization of paralysis when present."

Effect on Kidneys

The report states that data collected during the trial failed to indicate any apparent relationship between vaccination and kidney disease, and "there are a few additional data derived from studies of other groups which tend to confirm the lack of any such association." Nor was rhesus sensitization detected in 32 Rh-negative children who were among those immunized.

Results

During the study period from two weeks after vaccination to December 31, 1954, a total of 1,013 cases were reported as poliomyelitis. Of these, 14.8% were finally classified as doubtful or not poliomyelitis, 67.6% as paralytic poliomyelitis, and 17.6% as non-paralytic poliomyelitis. Of those classified as poliomyelitis, 79% were paralytic cases. In the placebo control areas the ratio among patients with poliomyelitis of those who received placebo to those who received vaccine was about 2 to 1; for paralytic cases only the ratio was 3.5 to 1. On the other hand, there was no difference in the attack rate of non-paralytic poliomyelitis between vaccine and placebo groups. The number attacked and the attack rates in the various groups are shown in Table II (Table 2b in the report).

Examination of the data in greater detail showed that the differences between vaccination and control groups tended to increase with the severity of the disease. For example, in the placebo control trial "33% of the spinal paralytic cases in the two lowest grades of paralysis occurred in the vaccinated, but only 23% of cases in the three higher grades were vaccinated, and only 2 of the 38 bulbo-spinal cases received vaccine. The four fatal cases of poliomyelitis occurred among children in the placebo control group." In the observed control trial all 11 fatal cases of poliomyelitis were in the control population (a case fatality rate of 2.5% among the controls).

The distribution of the cases by age, sex, and vaccination status is recorded for the placebo control areas in Table III and for the observed control areas in Table IV (Tables III and IV of the appendix in the report).

The cases in which positive diagnostic tests were obtained are analysed separately. In the placebo control areas 198 cases were reported, comprising 170 in which virus was isolated, 23 in which there was no virus but a fourfold or greater rise of antibody in paired sera, and 5 cases in which the virus was recovered from a family member. The following cases were found in the various groups (with the rate per 100,000 in parentheses): vaccinated cases 18 (9), placebo cases 86 (43). The difference between the two groups is statistically significant ($P = 0.001$). Of 53 paralytic cases (excluding bulbar) the vaccinated numbered 8 (4) and the placebo cases 45 (22). This difference is also significant ($P = 0.001$). Among 17 non-paralytic cases the vaccinated numbered 6 (3) and the placebo cases 11 (5). This difference is not statistically significant. In the observed control areas 300 cases were found with positive laboratory evidence of infection. Among these cases the vaccinated numbered 25 (11) and the controls 248 (35). This difference is statistically significant ($P = 0.001$). Among 134 paralytic cases (excluding bulbar) the vaccinated numbered 7 (3) and the control cases 127 (18). This difference is statistically significant ($P = 0.001$). Among 39 non-paralytic cases the vaccinated numbered 8 (4) and the control cases 31 (4).

TABLE II.—*Summary of Study Cases by Diagnostic Class and Vaccination Status (Rates per 100,000)*

Study Group	Study Population	All Reported Cases		Poliomyelitis Cases						Not Poliomyelitis	
				Total		Paralytic		Non-paralytic			
		No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
All areas—total	1,829,916	1,013	55	863	47	685	37	178	10	150	8
Placebo areas—total	749,236	428	57	358	48	270	36	88	12	70	9
Vaccinated	200,745	82	41	57	28	33	16	24	12	25	12
Placebo	201,229	162	81	142	71	115	57	27	13	20	10
Not inoculated*	338,778	182	54	157	46	121	36	36	11	25	7
Incomplete vaccinations	8,484	2	24	2	24	1	12	1	12	—	—
Observed areas—total	1,080,680	585	54	505	47	415	38	90	8	80	7
Vaccinated	221,998	76	34	56	25	38	17	18	8	20	9
Controls†	725,173	439	61	391	54	330	46	61	8	48	6
2nd grade not inoculated	123,605	66	53	54	44	43	35	11	9	12	10
Incomplete vaccinations	9,904	4	40	4	40	4	40	—	—	—	—

* Includes 8,577 children who received one or two injections of placebo. † First and third grade total population.

TABLE III.—*Distribution of Study Cases by Age and Sex, by Vaccination Status, and by Diagnostic Classification—Placebo Areas*

Diagnostic Classification	Total Both Sexes	Total Male	Total Female	Distribution of Total, Both Sexes by Age					
				Under 6 Years	6 Years	7 Years	8 Years	9 Years	10 Years and Over
Paralytic	270	165	105	2	70	102	76	18	2
Vaccinated cases	33	19	14	—	16	12	4	1	—
Rate per 100,000	16	18	15	—	37	16	7	4	—
Placebo cases	115	68	47	1	23	51	29	9	2
Rate per 100,000	57	65	48	187	53	69	53	37	57
Not inoculated cases*	122	78	44	1	31	39	43	8	—
Rate per 100,000	35	43	26	99	44	32	46	18	—
Non-paralytic	88	63	25	—	21	40	20	6	1
Vaccinated cases	24	16	8	—	5	13	6	—	—
Rate per 100,000	12	15	8	—	12	18	11	—	—
Placebo cases	27	18	9	—	9	9	7	2	—
Rate per 100,000	13	17	9	—	21	12	13	8	—
Not inoculated cases*	37	29	8	—	7	18	7	4	1
Rate per 100,000	11	16	5	—	10	15	7	9	12
Not poliomyelitis	70	51	19	—	15	35	16	3	1
Vaccinated cases	25	18	7	—	3	13	7	1	1
Rate per 100,000	12	17	7	—	7	18	13	4	29
Placebo cases	20	12	8	—	4	10	5	1	—
Rate per 100,000	10	12	8	—	9	13	9	4	—
Not inoculated cases	25	21	4	—	8	12	4	1	—
Rate per 100,000	7	12	2	—	11	10	4	2	—
Study population	749,236	387,949	361,287	2,088	156,584	270,246	203,810	94,431	15,609
Vaccinated	200,745	104,194	96,551	547	42,991	73,758	54,982	24,736	3,441
Control	201,229	104,170	97,059	535	43,056	74,447	55,133	24,281	3,479
Not inoculated	347,262	179,585	167,677	1,006	70,537	122,041	93,695	45,414	8,689

* Includes one case with incomplete injections.

TABLE IV.—*Distribution of Study Cases by Age and Sex, by Vaccination Status, and by Diagnostic Classification—Observed Areas*

Diagnostic Classification	Total Both Sexes	Total Male	Total Female	Distribution of Total, Both Sexes by Age						
				Under 6 Years	6 Years	7 Years	8 Years	9 Years	10 Years and Over	Unknown Age
Paralytic	415	254	161	—	122	143	89	53	6	2
Vaccinated cases	38	29	9	—	—	24	13	—	1	—
Rate per 100,000	17	25	8	—	—	18	17	—	47	—
Control cases	330	203	127	—	122	91	60	50	5	2
Rate per 100,000	46	54	37	—	56	52	39	42	17	7
Not inoculated cases*	47	22	25	—	—	28	16	3	—	—
Rate per 100,000	35	32	39	—	—	41	33	30	—	—
Non-paralytic	90	55	35	—	25	36	17	8	3	1
Vaccinated cases	18	15	3	—	—	12	5	1	—	—
Rate per 100,000	8	13	3	—	—	9	7	12	—	—
Control cases	61	31	30	—	25	16	9	7	3	1
Rate per 100,000	8	8	9	—	11	9	6	6	10	4
Not inoculated cases	11	9	2	—	—	8	3	—	—	—
Rate per 100,000	8	13	3	—	—	12	6	—	—	—
Not poliomyelitis	80	49	31	1	22	36	14	6	1	—
Vaccinated cases	20	15	5	—	1	14	5	—	—	—
Rate per 100,000	9	13	5	—	51	10	7	—	—	—
Control cases	48	29	19	1	20	13	7	6	1	—
Rate per 100,000	7	8	5	40	9	7	5	5	3	—
Not inoculated cases	12	5	7	—	1	9	2	—	—	—
Rate per 100,000	9	7	11	—	80	377,913	4	—	—	—
Study population	1,080,680	560,373	520,307	2,677	222,749	377,913	275,255	136,833	34,687	30,566
Vaccinated	221,998	113,837	108,161	106	1,963	134,404	74,291	8,627	2,128	479
Control	725,173	377,474	347,699	2,476	219,534	175,669	152,469	118,141	29,015	27,869
Not inoculated	133,509	69,162	64,447	75	1,252	67,840	48,495	10,065	3,544	2,218

* Includes four cases with incomplete injections.

Effect on 6-year-olds

The analysis shows that "the protective effect with respect to paralytic poliomyelitis is significant for each year of age except for the 6-year-olds, where, based on 16 and 23 paralytic cases, the attack rates are 37 and 53 per 100,000 of the population in vaccinated and placebo controls respectively." The protective effectiveness apparently increased with increasing age. A careful comparison of the serology and other data for the 6-year-olds and the rest of the children showed no discrepancy that could account for the difference in protection conferred by the vaccine, and "the data available are inadequate to allow further speculation on the difference."

Trials in Canada and Finland

Placebo control trials were also carried out with the same vaccine in Canada—in the province of Manitoba, the province of Alberta, and Halifax, Nova Scotia—and also in Helsinki, Finland. Although the number of cases admitted to these trials was small, the attack rate, when they are combined, was found to be significantly lower in the vaccinated children than in those who received placebo ($P = 0.035$). Only Type I virus was recovered from study cases in Canada and Finland.

Final Estimate

Among non-paralytic cases there was no significant numerical difference between vaccinated and control patients. When paralytic cases are considered, an estimate of 72% effectiveness for the vaccine was obtained in the placebo areas and 62% in the observed control areas. The effectiveness of the vaccine measured against the incidence of spinal-paralytic cases was nearly the same in the placebo control areas and the observed control areas—82 and 83% respectively—and the corresponding lower limits of estimated effectiveness were 65 and 64% respectively. Its effectiveness against bulbo-spinal cases was estimated at 91% in placebo control areas and 60% in observed control areas; these figures are unreliable because of the small numbers concerned. The effectiveness of the vaccine in placebo areas was 68% against Type I virus, 100% against Type II, and 99% against Type III. Some differences were noted between different lots of vaccine. The same trend was noted in the observed control areas, but "the calculated effectiveness was less than in the placebo areas." The report concludes: "It may be suggested that vaccination was 80–90% effective against paralytic poliomyelitis; that it was 60–70% effective against disease caused by Type I virus, and 90% or more effective against that of Type II and Type III virus. The estimate would be more secure had larger number of cases been available."

BLAND-SUTTON CENTENARY

The Middlesex Hospital and Medical School commemorated on April 22 the centenary of the birth of Sir John Bland-Sutton, who was born at Enfield in 1855. In the school in which he served and the Institute of Pathology which he created, visitors were able to see the latest scientific developments, such as the manipulation and dispensing of radioactive materials, and also some Bland-Sutton personal relics. These last included a photograph of his characteristic last message to the nurses tending him: "I feel too sad to talk, so write my thoughts in chalk on this wall. Nurses well train'd and kind, better no man can find. Farewell."

Tributes from his Friends

In the school library, under the presidency of Professor Sir CHARLES DODDS, F.R.S., who acted as dresser at Sir John Bland-Sutton's last operation at the Middlesex, three former associates of the great surgeon paid delightful personal tributes. Sir Gordon Gordon-Taylor, Sir William Gilliatt, and Lord Webb-Johnson each approached the subject from a different angle, but all threw new light upon it.

Sir GORDON GORDON-TAYLOR recalled that Bland-Sutton's ashes in a Burmese urn still reposed in the Middlesex Hospital Medical School, where he had spent so many years teaching on the dead the better to serve the living. From the very first he had determined to be a surgeon. Perhaps fortune brushed him with her wings in the time at which he came into surgery. The abdominal surgeon at the end of the last century "graduated along the pathway of the female pelvis." The scene was set for Bland-Sutton. The abdomen was a territory of vast possibilities for the removal of the gigantic tumours to be found at that time.

As a surgeon Bland-Sutton worked at incredible speed, but without the appearance of haste. He came into the theatre with a certain air. He did not wear a mask—such would have covered his Napoleonic features. But he also came in with the assurance of a Field-Marshal Montgomery. There was no loss of self-control, no flurry. No matter what the urgency, all that was audible was, "It's all right. It's all right." He was the first surgeon in this country to excise a duodenal ulcer. As a writer he was as tireless with his pen as he was indefatigable with his dissecting knife and scalpel. Bland-Sutton's operating theatre was the Mecca to which surgeons came from all over the world. He approached more nearly to John Hunter than any other surgeon who had ever lived.

Birth of the Gynaecological Surgeon

Sir WILLIAM GILLIATT pointed out that Bland-Sutton transformed the gynaecological physician into the gynaecological surgeon. He performed some vaginal operations, but he was essentially an abdominal surgeon. In the face of his success, opposition to the operative treatment of ovarian fibroids died down. Soon every gynaecologist was adopting removal by hysterectomy. At the Chelsea Hospital for Women Bland-Sutton had his assistant surgeon to help him, instead of his house-surgeon, and Sir William Gilliatt thought this might be regarded as the beginning of surgical team-work in operations. Bland-Sutton was well aware of his rapidity in operating, and as an example of just how rapid he was the speaker instanced three subtotal hysterectomies completed within an hour. He used fewer instruments than most surgeons, and these he carried in a small case which resembled the jewel case of the Edwardian era. He disliked rubber gloves because he thought they reduced his tactile sense, although in his books he made a plea for them. A chance encounter with Victor Bonney caused the latter to be become a gynaecologist, and the making of a gynaecologist of Bonney might be regarded as the greatest of the great contributions which Bland-Sutton made to gynaecology. He added that one could not be in Bland-Sutton's presence without learning from him. Especially did one learn, when working with him, to avoid unnecessary detail.

Lord WEBB-JOHNSON mentioned that punctuality was an outstanding characteristic of Bland-Sutton. As a surgeon he was a prima donna; he was not only a master surgeon, but basically a master anatomist. Lord Webb-Johnson went on to speak of Bland-Sutton's connexions with the Royal College of Surgeons. One president remonstrated with him for not giving a full hour's lecture. At his next lecture Bland-Sutton arranged for an attendant to put the clock on a quarter of an hour at an interesting point, and the same president congratulated him on a lecture so absorbing that the time had simply flown. Bland-Sutton tried six times in ten years for a seat on the College Council. After his defeat in 1909 Lord Webb-Johnson asked someone the reason, and was told that it was because Bland-Sutton was on the staff of the Chelsea Hospital for Women. In those days there was a prejudice against specialists, particularly gynaecologists. When the remark was repeated to him, Bland-Sutton resigned his appointment. "Hang it all, he was a surgeon at heart, not a gynaecologist." In the following year—1910—he was elected.

Nova et Vetera

ONE HUNDRED YEARS OF ARMY PATHOLOGY

One hundred years ago the British troops who had wintered in the Crimea were falling sick and dying in such numbers that public opinion at home was greatly disturbed. One of the consequences of this was that Lord Panmure, the Secretary of State for War, appointed an Irish physician, Dr. R. S. D. Lyons, and "two able assistants," Dr. William Aitken and Dr. Doyle—"both accustomed to and versed in the operations of the dead house"—to investigate, especially in the hospitals at Scutari, the nature of the diseases from which the troops were suffering. Dr. Lyons received his instructions relating to the "pathological researches" he was to make in a letter from the War Office dated April 27, 1855, and it is interesting that the following cautionary note was contained therein: "As the office to which you are appointed is new in the Medical Department of the Army, it is possible, although not probable, that some difficulties may arise in the prosecution of your researches." The three pathologists sailed for the Crimea shortly afterwards; and the report of their researches was published in a Blue Book which was presented to Parliament in 1857. Such was the firm foundation on which military pathology was established a century ago.

Inquiries into military medicine in the Crimea revealed the inadequacy of the instruction given to probationers of the Army Medical Department; and this resulted in the establishment of the Practical Army Medical School at Fort Pitt, Chatham, in October, 1860. It is to the credit of the War Office that the importance of pathology was recognized at that early date, and Dr. William Aitken was selected by Mr. Sidney Herbert, Secretary for War, to be the first to fill the chair of pathology at the new Army medical school—an apt tribute to the excellence of his work in the Crimea. The school moved to Netley three years later and remained there until it was transferred to London in 1903.

William Aitken

William Aitken had a long and distinguished career, holding the professorship of pathology for thirty-two years: he was elected F.R.S. in 1873 and knighted in 1877. His success as a teacher was linked with his skill at correlating morbid appearances with clinical findings. As the father of military pathology he was in a position to stimulate the interest of medical officers into research, and the rising generation of young Army pathologists felt his influence—men like Lewis, Bruce, Leishman, Semple, and others who were to contribute so much to unravelling the mysteries of tropical medicine. Almroth Wright succeeded Aitken in 1892 and held the chair of pathology at Netley until his resignation, in 1902, to become pathologist to St. Mary's Hospital. The work of Wright, Semple, and Leishman laid the foundations for prophylactic immunization on the scale we know it to-day. The third professor of pathology at the Army Medical School was William Leishman, who held the appointment until the outbreak of the first world war.

Research which had been previously individual, or encouraged through voluntary association of kindred minds, was now to be replaced by organized directed research—such as the Anti-typhoid Committee, the Sleeping Sickness and Malta Fever Commissions, the Medical Research Committee (later the Medical Research Council). After the war various wartime consultative committees were merged to form the Army Pathology Advisory Committee, and the Pathology Directorate was established at the War Office in 1919, with Major-General Sir William Leishman, first Director of Pathology, as chairman.

Wartime Achievements

The mobile bacteriological laboratory came into use for the first time during the war of 1914–18, and in no previous war had investigations been carried out so near the front line. Pathologists, collaborating with physiologists, also investigated the mode of action of chemical warfare agents, and in the past forty years their responsibilities in this respect have increased rather than diminished. During the interwar years Brigadier J. S. K. Boyd's classical work did much to place our knowledge of the dysenteric group of diseases on a firm basis. Investigations carried out by him at the Royal Army Medical College led to the introduction of active immunization against tetanus in the British Army before the outbreak of the second world war, and this was undoubtedly responsible for the low incidence of tetanus among the wounded. Another outstanding medical achievement of the second world war was the development of the Army Blood Transfusion Service under the direction of Sir Lionel Whitby.

The influence of the Army Pathology Service on the course of tropical pathology and medicine, and on bacteriology and immunology, can be judged from the numerous eponyms in the nomenclature—*T. lewisi, T. brucei,* the Brucella group, the Flexner-Boyd group, Leishman stain, and Leishman–Donovan bodies. The names of Lewis, Bruce, Leishman, Semple, Cummins, Boyd, and many others will always remain an inspiration to those who continue the work.

A. SACHS,
Major-General, A.M.S.

Reports of Societies

UNSOLVED PROBLEMS IN THE BODY'S REACTION TO BURNS

The extent of present-day research into problems associated with severe burns, and some of the fields needing further investigation, were indicated at a meeting of the Basingstoke Plastic Centre Medical Society at Rooksdown House on April 14.

The chairman, Mr. PATRICK CLARKSON (casualty surgeon, Guy's Hospital), explained that the programme had been arranged with special emphasis on basic questions of pathology and metabolism in burns. It was significant, he said, that there had been no dramatic improvement in the mortality of burns (within burns centres) during the last five to eight years. Nor, indeed, since the three important developments of the middle 1940s, which had been: an understanding of the early colloid and electrolyte needs of severely burnt patients; the effective use of antibiotics; and prompter, more radical surgery in the removal of sloughs and in grafting. What was now needed were new therapeutic developments based on fuller knowledge of the enzyme chemistry and electrolyte and colloid exchanges in the early stages, on better understanding of the later metabolic and endocrine factors, and on improvements in homograft techniques.

Skin Enzymes

Professor R. H. S. THOMPSON (Department of Chemical Pathology, Guy's Hospital) submitted evidence for the view that altered enzyme action occurred in the peripheral parts of burned areas, and discussed briefly the part enzymes might play in some of the local and general effects seen in burns. There were two possible modes of action, he said: there might be abnormal local cell metabolism as a result of the inactivation of enzymes by heat; or the release of active enzymes from damaged cells into the general circulation. That selective skin enzyme inhibition could cause local redness and blistering was clear from knowledge of the action of lewisite. By combination with certain enzymes this arsenical inhibited cell oxidation systems in varying degrees, and dimercaprol, which prevented the development of the lewisite blister, acted by reversing these changes. It could be accepted, then, that redness and blistering could result from selective enzyme inhibition by a chemical factor. Though further investigation was needed, thermal sensitivities of skin enzymes were known to vary very much, and therefore, in the peripheral zone of a burned area, conditions were present which might cause selective enzyme inhibition.

It was less certain that enzyme systems released from burned tissue played a significant part, but it had been suggested that liberated proteinase, acting outside the cell, could contribute to such serious effects as vasodilatation and loosening of the epidermis prior to blister formation.

Professor Thompson finally considered histamine and acetylcholine, two vasodilators present in skin. With Dr. I. A. Magnus, he had found the level of cholinesterase in the skin lower in sufferers from heat urticaria than in normal subjects, and there was the possibility, therefore, that this factor played a part in the wealing tendency. Cholinesterase was heat-sensitive, and if it were reduced in amount in burned skin acetylcholine might act unchecked and contribute to the production of blisters.

Abnormal Carbohydrate Metabolism

Dr. W. J. H. BUTTERFIELD (M.R.C. Clinical Research Unit, Guy's Hospital) read a paper describing his investigations of deranged carbohydrate metabolism in burned patients, made whilst working in America in the burns unit directed by the late Everett Evans. It was the practice there, as soon as the patient had been adequately resuscitated, to begin feeding with a very rich diet with the object of preventing the usual loss of weight during the period of reparative surgery. The diets contained much carbohydrate, liberal protein, and ample fat. There was a standard intake of 50–60 calories per kilogram of body-weight per day. Beginning with the observation of glycosuria in a patient so fed, Dr. Butterfield found a similar abnormality of metabolism in 14 of 140 consecutive admissions to the unit. This abnormality consisted of glycosuria without acetonuria, a high fasting blood-sugar level, and an elevated glucose tolerance curve. It began, as a rule, during the first week and lasted for periods of days, weeks, or months, but was usually briefest in children. When long-lasting, the glycosuria waxed and waned and was aggravated by plastic surgical operations. This diabetic state did not occur in controls given the same diet; they simply gained weight. It seemed that, in the group of burned patients, carbohydrate could not be used as a protein sparer, and it banked up in the blood. The aggravation of the condition by operations, the absence of acetonuria, and a negative nitrogen balance were all in accord with adrenocortical overactivity as the basis for the diabetes. This possibility was supported by the finding of high urinary corticoids and low eosinophil counts in the diabetic cases and by the production of similar metabolic patterns in volunteers following the administration of A.C.T.H. and hydrocortisone.

Dr. Butterfield then found that in its earlier phase this diabetic state showed insulin resistance. Further investigations led him to believe that the adrenocortical response disturbed carbohydrate metabolism at the pyruvate level through interference with SH metabolism. An SH donor, dimercaprol, appeared temporarily to correct this disturbance at the pyruvate level.

Research on Homografting

Dr. P. A. GORER (Department of Pathology, Guy's Hospital) spoke on the serological approach to the homograft problem. There was general agreement, he said, that the destruction of the graft was due to an antigen-antibody reaction, and he gave a brief account of current ideas concerning its nature. Damping down the antibody response by such agents as *x* rays and cortisone had obvious disadvantages. Improved results might be obtained if skins could be typed. Skin itself was hardly suitable for serological work, but the following methods could be applied to man: (1) tests with soluble extracts, (2) tests with small particles derived from skin, and (3) a search for antigens shared by skin and free cells such as leucocytes or erythrocytes. Shared antigens had actually been demonstrated in man. A great deal of further work was needed, and volunteers would have to be used if progress was to be accelerated. However, women below the menopausal age could not be used owing to possible dangers to the foetus, and even with men there was some risk of causing later difficulties in matching them for blood transfusion.

Fluid and Electrolyte Problems

Dr. J. P. BULL (M.R.C. Industrial Injuries and Burns Unit, Birmingham Accident Hospital) dealt with early electrolyte and fluid balances in burned patients. The total amount of plasma loss had been measured experimentally: it was approximately 1 ml. for each 1% of the body surface burned per kilogram of body-weight; but these estimates were made on untreated animals and treatment might influence the results.

Dr. Bull then described findings in 33 patients on the fate of administered sodium and water. Beginning soon after burning, there was a period of marked retention of these substances by the kidney, and it was greatest in the more extensive burns despite the replacement of sufficient colloid fluid to correct the haematocrit reading. During this time it was possible to raise the excretion of sodium and water to some extent by giving further quantities, but only a small proportion was excreted and greater positive balances occurred. Pulmonary oedema might follow the resulting increase of the extracellular fluid volume, and it was unwise in otherwise adequately treated cases to attempt to increase the urinary output by increasing the fluid intake. The plasma sodium level also was low temporarily, but he had not seen symptoms which could be attributed to it. On the other hand, in the early stages after burning, potassium excretion was increased, and unless the potassium was replaced there was a danger of abnormally low serum levels after a few days.

Whether a kidney lesion played a part in these exchanges remained an open question. There was some histological evidence of tubular damage in severe burns, but, unlike the excretion in tubular necrosis, in burned patients total anuria was rare, the urine could be moderately concentrated, and there was sodium retention. It was likely that adrenal cortical activity was a factor, but the finding that severe injuries of other types did not develop sodium and water retention if given adequate blood and colloid fluid suggested that the retention syndrome might be determined by circulatory dynamics.

Early Primary Surgery

Mr. A. J. EVANS (Plastic and Jaw Unit, Rooksdown House) described the treatment practised in the Basingstoke Burns Centre, and some of the lessons learned in treating 500 cases during the past five years. The exposure method was introduced at the beginning of this period, and they had been pleased with the results. Infection, especially with *Ps. pyocyanea*, was less common, the general condition of severely burned patients was better, and excision of the slough on or about the 14th day left a good surface for immediate skin cover. Primary excision was the ideal, but, owing to the difficulty of assessing the depth of many burns, it had only a limited application. It was their practice to use the method only when the area was restricted and the depth certain.

In cases of extensive burns it was important to remove sloughs early, and most had been excised by the 14th day. The operation was a formidable one, but had been shortened by using the Humby knife or by the electric dermatome to remove adherent sloughs and by developing better teamwork in the theatre. With at least two surgeons and two sisters scrubbed up, adequate dressings prepared beforehand, and the help of an anaesthetist experienced in this work, it was possible to complete the operation in 45 minutes.

Homografts had been used only in widespread burns as a life-saving measure, and it was their practice to use grafts from relatives or the skin bank, placed alternately with autografts. With this technique, regrafting had often been found unnecessary.

In conclusion, Mr. Evans said that the exposure method had given satisfactory results in cases with hand burns. It allowed active movements to be commenced on the third or fourth day, and encouragement of this was important.

Correspondence

Because of the present high cost of producing the Journal, and the great pressure on our space, correspondents are asked to keep their letters short.

Exchange Transfusion in Haemolytic Disease of the Newborn

SIR,—In the interesting article by Drs. W. Walker and G. A. Neligan (*Journal*, March 19, p. 681), they point out that a biochemical investigation of the effects of exchange transfusion in the newborn infant might help to explain the deterioration in the clinical condition which sometimes occurs. In a study of the electrolyte changes involved during exchange transfusion in infants suffering from erythroblastosis foetalis, I have been able to make the following conclusions from a series of 20 cases.

Serum collected as the transfusion progressed had a marked inhibitory effect upon the amphibian heart, and since this corresponded to high serum citrate concentrations it is not unreasonable to assume the presence of a citrate-induced hypocalcaemia. Serum ionized calcium was estimated to be well below levels associated with active tetany at some stages in the transfusion, yet none of these infants showed recognized signs of tetany. Increased pulse rate and signs of irritability were observed in some of the infants, but these could have been due to discomfort, circulatory failure, or shock. The absence of tetany is not easy to explain. It may be that muscle in the newborn responds differently from that in the adult, or that serum ionized calcium under such acute conditions is not necessarily an indication of the concentration of ionized calcium in the interstitial fluid.

Calcium gluconate (1 ml. of 10%) administered for every 100 ml. of blood exchanged had little effect upon the level of serum ionized calcium, probably because the amount of ionized calcium actually injected was very small relative to the high serum citrate concentration. E.C.G. changes consistent with hypocalcaemia have been recorded in the literature. Gustafson[1] noticed irregularities in the isoelectric line which he attributed to muscle tremor, although tetany was not apparent. The E.C.G. reverted to normal after calcium gluconate, which tends to substantiate the use of calcium gluconate in contrast to the biochemical findings above. I was also able to demonstrate that hyperkalaemia can develop during the transfusion, and, since some infants have a pretransfusion hyperkalaemia, the desirability of using fresh donor blood cannot be too strongly emphasized. The one fatal case of the series showed a simultaneous hyperkalaemia and hypocalcaemia at the time of death. The existence of pretransfusion hyperkalaemia might well increase the incidence of heart failure, since the physiological effects of a high potassium and a low calcium potentiate each other. The results of this investigation will be published in due course.—I am, etc.,

Edinburgh. HYLTON SMITH.

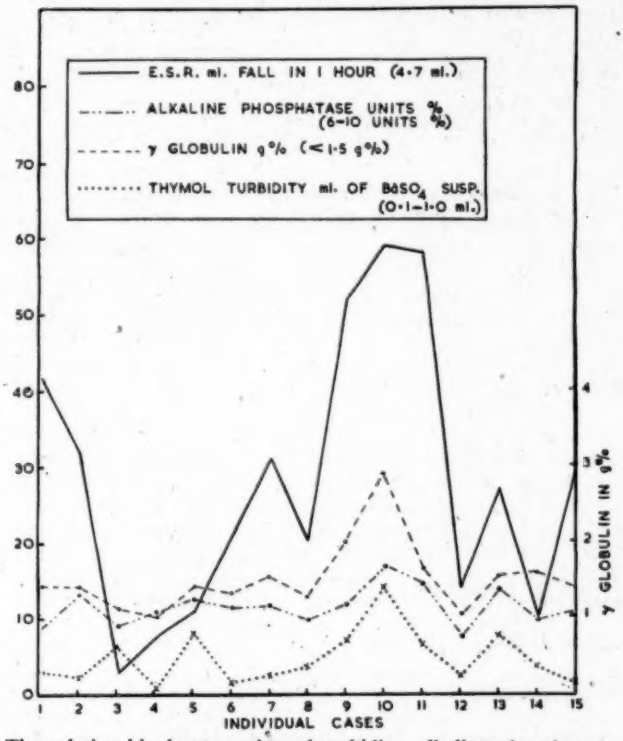
REFERENCES

1 Gustafson, J. E., *J. Pediat.*, 1951, **39**, 593.

E.S.R. at Low Temperature

SIR,—It was with some considerable interest that we read Dr. K. D. Gupta's article (*Journal*, March 19, p. 703) on the rise of the erythrocyte sedimentation rate at low laboratory temperature, and in which he suggested that this phenomenon might prove to be indicative of parenchymatous liver damage. While we have not estimated the E.S.R. at various temperatures, we have noted a definite correlation between the height of the E.S.R. and the extent of liver damage as indicated by three separate tests of liver function —all of these being performed at about 60° F. (15.5° C.) room temperature.

Our observations were made in a group of 15 cases of Sjögren's syndrome, in none of whom was there any obvious clinical sign of liver dysfunction. The liver function tests were carried out as part of a general investigation of the function of the secreting glands of the body. Two empirical tests were employed—the thymol turbidity and the alkaline phosphatase, since they are considered to be the most sensitive means of detecting subclinical impairment of hepatic function.[1] The thymol turbidity test was above the normal value (1.00) in 14 cases, while the alkaline phosphatase test was above the upper limit of normal (6–10 units) in 10 cases. A third test, based on the synthetic function of the liver, was carried out—that is, the estimation and fractionation of serum proteins by electrophoresis[2] and by chemical estimation.[3] In all cases the serum albumin was low, and the globulin fraction, in particular the gamma globulin, was raised. In contradiction to the generally accepted view that a high E.S.R. is accompanied by a raised blood fibrinogen, the latter was found to be low in each of the six cases in which it was estimated.


E.S.R. ml. FALL IN 1 HOUR (4·7 ml.)
ALKALINE PHOSPHATASE UNITS % (6–10 UNITS %)
γ GLOBULIN g% (< 1·5 g%)
THYMOL TURBIDITY ml. OF BaSO4 SUSP. (0·1–1·0 ml.)
γ GLOBULIN IN g%
INDIVIDUAL CASES

The relationship between thymol turbidity, alkaline phosphatase, and γ globulin in serum and the erythrocyte sedimentation rate in 15 cases of Sjögren's syndrome.

The accompanying graph shows that in 13 out of the 15 cases quite a close correlation exists between these tests of liver function and the height of the E.S.R.—We are, etc.,

JOHN MCLENACHAN.
Birmingham, 3. E. L. TONKS.

REFERENCES

1 Maclagan, N. F., *Brit. J. exp. Path.*, 1944, **25**, 234.
2 Flynn, F. V., and De Mayo, P., *Lancet*, 1951, **2**, 235.
3 Wolfson, W. Q., *et al.*, *Amer. J. clin. Path.*, 1948, **18**, 723.

Immunological Concept of Cancer

SIR,—Professor H. N. Green, in a footnote to his admirable article (*Journal*, December 11, 1954, p. 1374), says that "recent findings indicate that serum antibodies disappear when the skin carcinomata appear." Does this apply to human cancer? Apparently the homologous antibody to human cancer is still hypothetical. In support of his concept, there is evidence of cancer influencing non-specific immunity mechanisms. Cancer interferes with the hypersensitive skin reaction to the mumps virus.[1] In the malignant lymphomas, anergy develops to tuberculin, mumps virus, and other antigens which produce delayed reactions.[2]

The defect in the skin reactions is presumably due to interference with the cellular mechanism of the reticulum cell and its derivatives, rather than to pure antibody deficiency. In my experience patients with chronic lymphatic leukaemia react normally to the mumps virus and also to tuberculin,[3] possibly due to the free circulation of lymphocytes. Human carcinomas, but not sarcomas, progressively inhibit the mumps virus skin test as neoplasia advances, a finding which does not apply to the tuberculin reaction. In these skin tests, human cancer depresses tissue reactions not directly concerned with homologous tumour immunity. Is the immune reaction to cancer also depressed as cancer develops?—I am, etc.,

Wellington, New Zealand. J. LOGAN.

REFERENCES

1 Logan, J., *N.Z. med. J.*, 1953, **52**, 400.
2 Schier, W., *New Engl. J. Med.*, 1954, **250**, 353.
3 Rostenberg, A., *et al.*, *Arch. Derm. Syph. (Chicago)*, 1954, **69**, 195.

Malignant Melanoma and Pregnancy

SIR,—Perhaps I may add another case of malignant melanoma complicating pregnancy to the list which is growing in your columns. In 1941 I saw such a case in a patient aged 27 who was eight weeks pregnant. There was a firm pedunculated swelling on the right labium majus which had been present for many years without alteration. It was about 4 cm. in diameter, and without evident pigmentation. It was thought to be a fibroma, but on section some of the cells were found to contain melanin. Section of the pedicle suggested that removal had been complete; in view of this fact, and because of the pregnancy, no more was done and she had an uneventful delivery. Two years later an enlarged inguinal gland was observed in another hospital. Bilateral dissection of the inguinal glands was performed, and two glands were found to contain growth. The patient died in 1945 with widespread deposits. An almost identical case was reported by Curtis.[1]—I am, etc.,

London, W.1. S. G. CLAYTON.

REFERENCE

1 Curtis, A. H., Editor, *Obstetrics and Gynaecology*, 1933, Vol. 3, p. 594. Philadelphia.

Meningo-encephalitis in Mumps

SIR,—Mumps is said to be increasing in severity, but three cases of definite meningo-encephalitis in an outbreak of 29 cases of mumps in a school is, happily, unusual. The boys affected were aged 9, 9, and 10 years respectively and had nothing of importance in their previous histories, except that the most severe case had had migraine.

The outbreak of mumps was started by one boy. The first case of meningo-encephalitis occurred in the first wave on the 22nd day, the second in the second wave on the 33rd day, and the third on the 49th day. The cerebral complications began with headache, vomiting, photophobia and drowsiness, a sharp rise in temperature—102° F. (38.9° C.) or 103° F. (39.4° C.)—and slight stiffness of neck and back. This stiffness of neck and back and Kernig's sign increased on the second day. There were never any other signs in the C.N.S. or macular signs of increased intracranial pressure. The onset of this complication occurred on the third, second, and first days respectively of the parotitis, which was less marked than usual, and it lasted for four, three, and six days respectively.

The pyrexia was higher than in the uncomplicated cases of mumps and for a longer period—that is, between 100° F. (37.8° C.) and 103° F. (39.4° C.) for five, seven, and six days respectively—and the temperature did not become normal for twelve, ten, and seven days, whereas amongst the uncomplicated cases the temperature rarely rose to 100° F. (37.8° C.) or above, and never lasted for more than three days, and the average duration of pyrexia was five days and the maximum eight. The patients with meningo-encephalitis in this outbreak of mumps were certainly more ill than the uncomplicated cases. They all made complete recoveries. Dr. J. O. Terry examined the first and third cases and confirmed the diagnosis.

Injection of the parotid duct has often been mentioned as a diagnostic sign in mumps, and most practitioners have found it quite unreliable. However, in this epidemic it was noticed that the parotid duct was injected the day before the parotid gland enlarged, but became normal as soon as the gland enlarged. It may therefore be a little help in diagnosis if this time relationship is remembered.—I am, etc.,

Colwall, Malvern. J. RICHARDSON.

Encephalitis After Yellow Fever Vaccination

SIR,—I would like to endorse, with great conviction, the views put forward by Dr. Leonard Roodyn (*Journal*, November 20, 1954, p. 1226) on the subject of the vaccination of infants against yellow fever. In recent weeks four cases have been reported in which, in infants between the ages of 5 and 13 weeks, signs of a meningo-encephalitis have followed vaccination with 17D yellow fever vaccine in England. There is, however, no evidence of any kind that this meningo-encephalitic syndrome was necessarily due to the 17D yellow fever virus; it is certainly possible that it could have been, if only from the fact that the incubation period in three of the four cases was 9–11 days. In the fourth case, that of Dr. L. G. Scott (*Journal*, November 6, 1954, p. 1108), the incubation period was 12–16 days—that is, if the date of admission to hospital was September 29, and not September 9 as printed. But, as Dr. Roodyn points out, cases exactly similar to those reported occur frequently in infants who have received no injections.

Of the four cases reported, the first (that of Dr. J. Hewgill Smith (*Journal*, October 9, 1954, p. 852)) had a lesion in the chest, sufficient in a child of five weeks to produce a meningeal syndrome. The third case (that of Dr. Leslie G. Scott (*Journal*, November 6, 1954, p. 1108)) had virulent organisms in the throat, while the fourth case (that of Dr. E. A. Beet (*Journal*, January 22, p. 226)) was possibly a result of a double vaccination against yellow fever and smallpox. The clinical details of the second case are scanty (case of Dr. L. Haas (*Journal*, October 23, 1954, p. 992)) and the meningeal irritation disappeared after 24 hours.

It is my submission that there is little or no evidence in any of these four cases to incriminate the yellow fever vaccine. The figures given by Dr. Roodyn on the numbers both of vaccinations given and of reactions reported are sufficient to warrant a very careful assessment of the implications in incriminating the yellow fever vaccine. In Lagos, during the past fifteen years, some 35,000 vaccinations against yellow fever have been given; many of these have been given to infants; both Rockefeller Foundation and Burroughs Wellcome vaccine has been used; no case of reaction in an infant has been reported. It would be well, I think, to reserve judgment on the four reported cases in England. There can be no doubt that the expert virologists who produce yellow fever vaccines are continually on the look-out for reactions, and are competent and honest enough to state forthrightly whenever a vaccine has become dangerous. The important point, so well put by Dr. Roodyn, is that such meningo-encephalitic reactions in infants are so rare that it would be quite wrong to withhold vaccination from an infant who is proceeding to an area where endemic yellow fever exists. The risk of an infection with yellow fever in such an area is very much greater than the risk of a reaction to the vaccine.—I am, etc.,

Yaba, Nigeria. D. A. CANNON.

Salicylates in Anticoagulant Therapy

SIR,—Dr. M. H. Singer's suggestions (*Journal*, April 2, p. 851) regarding the use of salicylates as anticoagulants do not seem practicable from the pharmacological point of view. Salicylates have one-twentieth the prothrombinopenic effect of dicoumarol, and this effect, which is more marked with fever and a high metabolic rate as in acute rheumatism, tends not to persist with continued exhibition.

To produce an effect anywhere near the "therapeutic" about 6 g. a day would have to be given and this would be

quite likely to produce salicylism in a high proportion of cases.[1] Although a patient who has recovered from the initial shock of a myocardial infarction might justifiably be exposed to this high dose of salicylate, it is not for just this type of patient that he suggests this line of treatment. Further, such prothrombinopenic effect as would be obtained would not appear for 36–48 hours, and by this time the patient would be fit for transfer to hospital.—I am, etc.,

Edinburgh, 10. M. DALES.

REFERENCE

1 Goodman, L. S., and Gilman, A., *The Pharmacological Basis of Medical Practice*, 1955, 2nd ed., p. 286. New York.

Natural Childbirth

SIR,—As a general practitioner doing midwifery, and trying to carry out the principles of natural childbirth, I have followed this correspondence with great interest. I have never quite understood the opposition to Dr. Grantly Dick Read's methods, which, it seems to me, can at the worst do no harm and at the best promote truly painless labour. The letter from Mrs. Constance Lynn (*Journal*, April 2, p. 851) does give an apparently reasonable argument, though I do not feel her one experience gives her the right to condemn natural childbirth methods in quite such a wholesale fashion. She says, in the light of her experience, "is it worth having one's morale high in pregnancy, only to be battered in labour, and very low post-natally?", and goes on to say that all other recent mothers she talked to felt the same. I have the greatest sympathy with Mrs. Lynn, for I have had cases of my own who appeared to derive little or no benefit, but I think she is wrong to condemn a technique that did not work for her. I honestly believe that the majority of mothers are helped by their antenatal training to a greater or lesser extent. Why then does it sometimes fail?

Although we do not know the medical details of Mrs. Lynn's case, I think a study of her experience is revealing. She says, ". . . a great deal of what I was taught to do was physically impossible in labour." I find it hard to believe that something a woman has done easily in late pregnancy is "physically impossible," though I realize it may be very hard. I believe the clue to what happened may lie in her next words, "much of what was possible one hadn't the inclination to do at the time." This admission makes me wonder whether the medical and nursing staff who helped her in her labour were fully conversant with and used to relaxation methods, for even the best and most enthusiastic patient needs considerable help and encouragement from the beginning of labour (a point Dr. Dick Read has made again and again in his writing). If she did not get this help, and her confidence waned as labour progressed, then I can well believe that she was worse off than the unprepared patient. As she says, ". . . so becalmed and relaxed and optimistic had I become that I was totally unprepared for the really serious and hard business involved." Here again, if she was totally unprepared for it, then her antenatal teaching was at fault. I have found it necessary on occasion to caution the over-enthusiastic patient not to expect complete painlessness, and to point out that, pain apart, the physical stress and effort attendant on labour are considerable. If a woman understands this, and is properly helped throughout labour, then she will surely, I believe, be helped by her training. I would add that she will be helped the more if the staff assisting her in her labour are people she has seen throughout the antenatal routine, for I am sure this is an important factor in the promotion of natural childbirth, and that if she sees no one she knows in the labour-room, as is the case in most hospital practice, she will be less likely to succeed in her efforts. To sum up, I say, with Dr. Anthony Ryle (*Journal*, March 19, p. 725), that I feel justified in promising mothers treated this way that their pain will be diminished considerably in nearly all cases, and entirely abolished in some.—I am, etc.,

Bristol, 3. MICHAEL B. LENNARD.

SIR,—One salient point arises from this interesting correspondence: *the mother* must produce her own baby. Doctors, nurses, midwives, physiotherapists, analgesics, and anaesthetics may help or hinder her, may make labour more pleasant or more fearful, but the mother is the key figure.

If a mother is to obtain maximum help from the galaxy anxious to assist her, she must (1) be in harmony with her surroundings and (2) have complete faith in her attendant. Many mothers are forced into hospital who would rather be delivered at home, and *vice versa*. The domestic cat has more choice of place and arrangement of her confinement basket than the modern mother. In our organized maternity service how can a mother acquire faith in her attendant? During the course of her pregnancy, delivery, and postnatal care she may see four or five doctors, eight or ten nurses, one or two physiotherapists. It is very difficult to attract the attention of any individual in this throng. If the mother does have faith in someone at the fourth month, there is no guarantee that that person will conduct her confinement.

I witnessed my first delivery in an isolated Red Cross hospital in French Canada when I was a student. An elderly primipara, with a flat pelvis, lay quietly on the bed. Beside her sat a doctor she knew well and trusted. Only his eyes were visible behind the "Ku-Klux-Klan" garb worn for deliveries. His gloved hands were folded loosely in his sterilized lap. There was an anaesthetic machine and a trolley laden with drugs and instruments, but nothing seemed to be needed. At each contraction the doctor's voice, soft but firm, reiterated, "*Fermez la bouche, madame, et poussez, longtemps, longtemps.*" Presently a 9 lb. (4 kg.) baby was eased over the perineum. The mother was weary but triumphant. In the efficient tension of the modern well-equipped labour ward I have often longed for the absolute peace of that truly natural childbirth.—I am, etc.,

London, W.8. ROSAMOND BISCHOFF.

SIR,—I was interested to read the letter of Mrs. Constance Lynn on natural childbirth (*Journal*, April 2, p. 851). Before the birth of my first baby two years ago, I also attended weekly relaxation classes, but found to my dismay (being naturally of an athletic and energetic disposition, and having been taught the benefits of Dr. Grantly Dick Read's theories) that it seemed a tremendous effort to have to do any exercises whatsoever (albeit for relaxation), and my natural inclinations at the time were to be completely lazy. During the latter months of this pregnancy I stopped attending the classes and instead substituted for the daily exercises a daily rest and sleep. My labour was short and uncomplicated, and certainly far less painful than I had ever imagined. Before the birth of my second baby, born six months ago, I did no exercises whatsoever. I was in the labour ward for only ten minutes during this second birth.

This might illustrate that to have completely *natural* childbirth one should follow the natural demands of one's own body. I have known so many mothers whose labours have been long and difficult, and yet who have most faithfully attended these relaxation classes. Most of them were women who in the normal state of affairs took no exercise nor played any games, and yet whilst pregnant flung themselves into these exercises.—I am, etc.,

Gibraltar. DIANA CAMPBELL.

Diabetic and Insulin Coma

SIR,—In his most interesting and instructive article on the above subject, Dr. J. D. N. Nabarro (*Journal*, April 9, p. 902) omits to mention a very swift but effective treatment for hypoglycaemic coma—that is, the subcutaneous injection of 0.5 to 1.0 ml. of liquor adrenalin. 1:1,000. I have proved the efficacy of this procedure in a recent case, the patient rousing sufficiently after about five minutes to take sweetened drinks by mouth; moreover, it is much easier than giving large quantities of intravenous glucose solution.

Incidentally, I feel that many consultants are too ready to advise intravenous medication, which may possibly be the ideal treatment in the hospital ward, but which may be difficult and even dangerous when one is working single-handed in the patient's bedroom, often with inadequate lighting. I shall quote only two examples from personal experience. The drug aminophylline I have found to be quite effective and reasonably speedy when given by deep intramuscular injection rather than intravenously. For some years now I have carried in my bag ampoules of digoxin for intravenous injection, but I have never used one, as I have yet to meet a case requiring such urgent digitalization that oral digoxin with suitable sedation is not sufficient.

I shall be most interested to hear the views of other general practitioners and consultants on the points I have raised.—I am, etc.,

Birmingham. H. JOSEPHS.

Eclampsia

SIR,—Dr. A. W. Bauer (*Journal*, April 2, p. 848) in his reply to my letter (*Journal*, March 12, p. 666) has incorrectly assumed that I attributed the authorship of the thesis under review to him. I stated that he had invoked it.

In his original communication (*Journal*, February 19, p. 481) he adduced certain data which presumably were offered for corroboration, and certain hypotheses for integration into the aetiology. It was this latter that appeared impossible to effect. For, even admitting that abnormal reactions can continue after the "focus" (presumably the placenta in this case) had ceased to act, and accepting this in explanation of the occurrence of post-partum eclampsia, it would be impossible to reconcile such a process with the regression of the signs in certain cases of intragestational eclampsia—coincident with the death of the foetus—followed by their eventual recrudescence in labour a week or more thereafter.

The determinate role of sodium in the aetiology of toxaemia is supported by much evidence from animal experiment,[1 2 3] from the effects of sodium on the toxaemic[4] and the anuric,[4 5] and from the beneficial action of cation exchange resins.[6] Consonant with this evidence it is salt restriction that must be accorded paramount importance in the diet advocated by Dr. Bauer. Thus resolved the thesis invoked is not a conflict with the concept that renal ischaemia is responsible for the syndrome. Elsewhere I have shown[7] that myometrial resistance to stretch can effect this change in the kidney and afford the aetiological explanation.—I am, etc.,

London, W.1. JOHN SOPHIAN.

REFERENCES

1 Byrom, F. B., *Lancet*, 1954, **2**, 201.
2 Renzi, A. A., and Gaunt, R., *Ciba clin. Symp.*, 1954, **6**, 30.
3 Page, E. W., and Glendening, M. B., *Amer. J. Obstet. Gynec.*, 1955, **69**, 666.
4 Dieckmann, W., *Toxaemias of Pregnancy*, 2nd ed., p. 347. Kimpton, London.
5 Bull, G. M., *et al.*, *Lancet*, 1949, **2**, 229.
6 Carey, H. M., *J. Obstet. Gynaec. Brit. Emp.*, 1952, **59**, 67.
7 Sophian, J., ibid., 1955, **62**, 37.

Hypodermic Injection Technique

SIR,—Dr. K. D. Salzmann (*Journal*, April 9, p. 909) describes a technique for painless hypodermic injections, supported by sound physiological reasons. May I add a footnote on a further modification of technique, based, I think, upon equally sound anatomical grounds? As a student I was taught that sensory nerve endings, responding according to their type to stimuli of pain, touch, stretch, or temperature, were scattered comparatively sparsely in any one area of skin. When as a newly qualified "locum" in general practice during a particularly busy winter I was in danger of being myself laid low, the remaining principal in the practice ensured my useful survival with penicillin injections which, as far as the actual injections were concerned, were completely painless. His technique was to grasp the upper arm with his left hand, exerting downward pressure with the thumb so that the skin was stretched and unable to recede or roll under the pressure of the needle-point. Since that time I have always used the same technique myself, with most satisfactory results; and I have always found that the immediate pain of an injection is in direct proportion to the area of skin "displaced" by the procedure. I am sure that injections given through loose skin stimulate nerve endings sensitive to stretching which would be completely unaffected if the skin under the needle-point were prevented from dimpling. The gauge of the needle used is of less importance than the possession of a sharp point and a long bevel; a short-bevelled needle pushes rather than penetrates the skin; so, of course, does a long-bevelled needle which has been allowed to acquire a "hook." In my part-time appointment as medical officer to the local Army unit I always use my own 22 standard wire gauge needles for routine inoculations because the 26 S.W.G. Army issue needles have a 45° bevel which will not penetrate without pushing and hence causing pain.—I am, etc.,

Chieveley, Berks. JOHN RICHARDS.

SIR,—One way to make injections less painful, as now generally used in Sweden, is the combination with a local analgesic. The diphtheria toxoid is especially difficult, the intense burning sensation several minutes after the injection making it very unpopular among the children. About a ¼ volume of lignocaine 1% is enough, either mixed with the toxoid, or better still, if there is no hurry, separately. This is done by drawing into the syringe first the toxoid and then carefully the lignocaine, giving two separate layers. Inject slowly, make a pause of a few seconds after the lignocaine, and let the toxoid follow. This procedure does not affect the immunization process.—I am, etc.,

Gothenburg, Sweden. N. R. BLUME.

The Ban on Heroin

SIR,—Dr. A. H. Douthwaite has done a great service in drawing attention to the ban on heroin (*Journal*, April 9, p. 907). I am appalled by the way in which this valuable drug is being taken from us, for valuable it undoubtedly is. Whether or not there have been any consultations with the profession on this matter I do not know, but, if there have, such consultations have clearly not been with the right people. It is notorious that the more eminent a man is the less he is in touch with the art of day-to-day general practice. In this I do not include therapeutics by means of whatever happens to have come through the letter-box most recently, but treatment by well-tried and reliable methods. As Dr. Douthwaite says, heroin is very useful in the treatment of tracheitis. A host of other preparations are available, many of them in proprietary form. I have used most of these myself. Some of them are satisfactory, while others produce undesirable symptoms. Some patients' tracheitis seems to be resistant to them all. In such cases linctus heroin. often produces relief.

There are, of course, many other conditions besides tracheitis in which heroin is a most useful drug. Many of these have been mentioned by Dr. Douthwaite. Even had the profession been well advised of the possible withdrawal of this drug, and had they considered all the possible drawbacks inherent in such withdrawal, yet they might have agreed to its loss if they were persuaded that the sacrifice was made for a good reason. But, so far as I can see, this is certainly not the case. We are told that it is to ease the situation of drug addiction not in this country but in the United States. There is a lot to be said for nations helping each other in medical matters, but how can the ban on its manufacture here possibly help the situation in the U.S.A.? Does the World Health Organization really believe in its own name? Has it forgotten the U.S.S.R. and China? These countries will clearly continue to manufacture heroin, and undoubtedly they are at least as well versed as ourselves in the art of surreptitious export. The more one looks into the argument, the less water it appears to hold. Alcohol addiction is not uncommon in the United

States—can we expect that the World Health Organization has sufficient confidence in its reasoning to attempt the treatment of this problem the same way?

I only mention these obvious matters to show how the whole situation seems to be clouded by woolly thinking. As a result of this so-called thought, and without the general practitioners having been consulted, the general public is to be robbed of a most useful drug.—I am, etc.,

London, N.W.1. R. HALE-WHITE.

SIR,—Dr. A. H. Douthwaite's letter (*Journal*, April 9, p. 907) is a timely reminder of a Governmental act which cannot but have adverse effects on patients with disease of the brain calling for surgical treatment. For many years now it has been the custom in neurological departments, both medical and surgical, to use for the relief of intolerable headache due to cerebral tumour ¼ gr. (11 mg.) heroin given in powder form with phenacetin by mouth. This type of analgesia is not associated with the risk of the development of a marked rise in intracranial pressure which is liable to occur when morphine and pethidine are exhibited in such cases.

It is now established that satisfactory anaesthesia for neurosurgery demands immediate recovery of consciousness on withdrawing the anaesthetic, combined with the maximum possible depression of the cough reflex during operation, yet minimal accompanying respiratory depression. With this in view a large number of analgesic drugs have been tested as premedication, and as supplements to nitrous oxide and oxygen, in the course of the last few years. Pethidine, methadone, and L-methorphinan have all been found wanting mainly because it proved impossible to obtain the necessary depression of the cough reflex without simultaneously reducing respiratory displacement to the point at which serious rise in intracranial pressure occurred. Heroin alone has stood the test of time in these cases, and its withdrawal from the *Pharmacopoeia* cannot but result in hardship, suffering, and, it may be, fatalities.

There seems little hope that the use of "nalorphine" to antagonize respiratory depression will make the previously rejected drugs any more acceptable; for Payne[1] has shown that the effect of this drug, although initially stimulating, is subsequently depressant. Perhaps N-allyl-nor-dromoran will be a little more satisfactory in this respect, but, even so, the lack of heroin can only be made good by months, or it may be years, of searching for another agent with the same properties. It seems a pity that some patients should suffer unless it can be conclusively demonstrated that the result is really going to benefit a vastly greater number of potential addicts. An embargo on the import and manufacture of heroin, confined to this and a few other countries, is obviously insufficient to attain this end. Indeed, unless the manufacture of the drug is discontinued everywhere there will be no gain to offset the suffering of these patients whose pain cannot otherwise be satisfactorily relieved.—We are, etc.,

A. R. HUNTER.
Manchester, 13. R. T. JOHNSON.

REFERENCE

[1] Payne, J. P., *Brit. J. Anaesth.*, 1954, **26**, 22.

The Aftermath of Hysterectomy

SIR,—In support of Dr. Winifred Coppard's letter on "The Aftermath of Hysterectomy" (*Journal*, April 2, p. 852) may I make some observations? About four months ago I underwent a total hysterectomy for a large fibroid of long standing, my ovaries being left *in situ*. For several years the thought of a hysterectomy had loomed towards me, and in November last a bad uterine haemorrhage was the final thing which made me agree, at the age of 42, to get on with it. At the time of operation I was fortunate in having a married woman surgeon of great wisdom, understanding, and humour, and her remark to me in discussing my forthcoming operation, "Some women have such a sentimental attachment to their uterus," put the whole affair into the right perspective. That, coupled with being married and having three children, helped a lot. All went well, I was up on the third day after operation, walked out of hospital on the tenth, and after a further five weeks of gradual resumption of normal activities I returned to my usual full domestic and public life. Now, after four months, I feel very fit, and able to plan my days without the tiresome worry of heavy periods every 3½ weeks. In addition, after 20 years of contraceptives, married life is now unhampered and happy.

Having seen other women in a similar position to myself during the past few months, but without the help and support of a married woman medical adviser, and making slow and anxious recoveries, might I suggest that when a hysterectomy is advised it is to the gynaecologist of her own sex that a woman can turn with advantage?—I am, etc.,

DOCTOR'S WIFE.

SIR,—I wish to congratulate Dr. Winifred Coppard on her letter (*Journal*, April 2, p. 852) drawing the attention of our profession to the aftermath of hysterectomy. Many general practitioners are aware that those who have undergone this mutilating operation are among the most regular attenders at the surgery, for not only do cyclical attacks of depression occur as mentioned by Dr. Coppard, but also attacks of headache, backache, nausea, and blackout.

Since 1952 I have collected records of 30 women who underwent hysterectomy for non-malignant conditions some 2–12 years previously. Of these, 15 women considered their general health had deteriorated since operation, 5 considered their health was about the same, and only 10 women appreciated the benefit this major operation had brought to their general health. In reply to a question on marital happiness, 3 of the 19 married women stated that they had divorced since operation, and a further 8 reported deterioration in their marital harmony, leaving only 8 women who reported no change in their marital happiness. Intercourse had not been attempted since operation by 9 women, because of lack of knowledge or lack of desire, 4 women complained of dyspareunia which made intercourse a rare event, and only 6 women reported normal intercourse. This legacy of marital problems stresses the need for trial of alternative treatment in preference to the easy policy of "If thy womb offend thee, cut it out." Too few hospitals call the husband into consultation or ask his permission before the decision to operate is made. In the past twelve months I have referred two patients to different gynaecologists for investigation into infertility, and on both occasions the consultants advised hysterectomy for small symptomless fibroids. I consider it my duty in general practice to protect the patient from an unnecessary hysterectomy, and where this is inevitable to discuss the operation with both marriage partners, advising on subsequent intercourse and the probable need for hormone therapy.

At the Royal Society of Medicine recently I remarked that "hysterectomy does not cure premenstrual syndrome, but it does transfer the patient from the gynaecologist's wing to a specialty dictated by the site of the symptoms." The same may be said of other functional disorders for which hysterectomy is to-day practised. One may well ask the gynaecologist, "Is your operation really necessary?"—I am, etc.,

London, N.18. KATHARINA DALTON.

Neon Lighting in Hospitals

SIR,—Dr. William B. Bacon's letter (*Journal*, March 12, p. 666) contains statements which cannot go unchallenged. Presumably your correspondent is referring to fluorescent and not to neon tubes, since the latter are never used for lighting purposes. Fluorescent tubes operate on the mercury discharge principle and are fundamentally different from neon tubes, which are used in advertising signs.

While it is true that some types of fluorescent tubes have, in the past, over-emphasized the blues and greens, and so could give rise to danger to which Dr. Bacon refers, during recent years there have been great improvements in colour-rendering properties, and modern installations are completely satisfactory. From the wide range available tubes may be chosen to give almost any desired colour rendering, including that of tungsten, and if the installation is designed by a competent lighting engineer there need be no fear of a patient becoming cyanosed and escaping attention due to poor lighting.

Fluorescent tubes have been used in the lighting of the surgical corridor of this hospital, which includes a thoracic surgical unit, with perfectly satisfactory results, following conversations with the consultant surgical staff, who were naturally interested in the points now raised by your correspondent.—I am, etc.,

Churchill Hospital, Oxford. C. F. SHARE, Assistant Administrator.

Medical Numismatics

SIR,—Your reader Dr. G. E. B. Payne (*Journal*, March 19, p. 729) might be interested to know that the full name of Dr. Eady was Samuel Phillips Eady, and (according to records preserved at the Westminster Public Library at Buckingham Palace Road) he lived at 38, Dean Street, Soho, from 1820 until 1825.

There is a reference in the *Gentleman's Magazine*[1] which might well refer to him. In describing a book intended for purchase the writer says, "The work contains 24 leaves somewhat broader and handsomer than the soft sybilline effusions in which Dr. Eady's merits are recorded." This might suggest that Dr. Eady (if, indeed, it is the same man) used other forms of advertisement than the token, and was, therefore, presumably not a professional man.—I am, etc.,

C. J. CITRON, Chairman, Public Libraries Committee.

London, W.C.2.

REFERENCE

[1] *Gentleman's Magazine*, 1825, **95**, 22.

Tropical Pulmonary Eosinophilia in a West African

SIR,—Contrary to Dr. James A. McFadzean's belief (*Journal*, March 26, p. 771), eosinophil counts of the order mentioned by him are by no means unusual in persons with Calabar swellings due to loaiasis. In our view his patient presented the ordinary features of this common West African disease, and we regard his diagnosis of tropical pulmonary eosinophilia as mistaken.—We are, etc.,

A. R. D. ADAMS.
D. R. SEATON.
W. E. KERSHAW.

Liverpool, 3.

Recognition of Dental Fluorosis

SIR,—With regard to Mr. N. J. Ainsworth's reference to his visit to an Oxfordshire village in 1939 (*Journal*, April 9, p. 911), may I refer him to the reprint, which was sent to him that year, of the first published description of dental fluorosis at Bampton,[1] in which I stated: "I noticed dental fluorosis in adults and children in different parts of the village, and Mr. Ainsworth very kindly came to Bampton and has confirmed my findings"? There was no implication in this statement or in the quotation from it (*Journal*, March 26, p. 789), which Mr. Ainsworth mentions, that dental fluorosis was present in every one of a group of villagers who were collected for his diagnosis. Later that summer a number of Bampton inhabitants with severe dental fluorosis were demonstrated at the meeting of the Physiological Society held at Oxford.—I am, etc.,

Oxford. DAGMAR C. WILSON.

REFERENCE

[1] Wilson, D. C., *Nature*, 1939, **144**, 155.

Dermatomyositis

SIR,—I cannot agree with Dr. Allan Bigham (*Journal*, April 9, p. 909) that there is any doubt about the diagnosis of the case of dermatomyositis described by me (*Journal*, March 26, p. 770). Dr. Bigham's chief doubts seem to arise from the fact that there was painful joint swelling, and that the orbital tissues were not involved. I agree with him that the presence of painful joints is against the diagnosis of dermatomyositis, and it was this very fact which led me to make the original erroneous diagnosis of acute rheumatism. Furthermore, as the case progressed it became clear that *skin* and *muscle* swelling and tenderness were the major features, whereas joint tenderness had been present in the initial stages. My description did not perhaps make this sufficiently clear.

While agreeing with Dr. Bigham's description of a typical case of acute dermatomyositis, which includes swelling of the infra-orbital tissues, the absence of facial swelling in my case in no way invalidates the diagnosis. Few diseases present all the features of their classic descriptions.

Finally, the histological findings of round-cell infiltration with fragmentation of muscle bundles and proliferation of their nuclei, which were present in my case, may not be regarded as specific of dermatomyositis, but these are the findings which have been present in most recorded cases.—I am, etc.,

Richmond, Yorks. HILLAS G. SMITH.

Chlorpromazine in Mental Disease

SIR,—Miskolczy[1] in 1938 suggested that only those parts of the brain which reached their fullest development in man were affected in schizophrenia, and I believe much evidence has accumulated since then to support the view that schizophrenia is a phylogenetically and otogenetically determined encephalopathy with disordered action of brain cells in the frontal lobes and hypothalamus particularly, and, to a lesser extent, in the parietal and temporal lobes. Further, that the affected cells may recover or become inactive, so that the process may be arrested at any level, but that fully developed cases go on to functional loss of much of the frontal lobes and of the lateral and posterior hypothalamus. I hope you will allow me to comment on the possible incidental light thrown on this hypothesis by the article on the use of chlorpromazine in mental hospital patients by Dr. J. Lomas (*Journal*, April 9, p. 879).

The information supplied by Dr. Lomas confirms what has been stated several times before, that the chief effect of chlorpromazine is on the diencephalon and not on the cortex; in fact, that it is a partial chemical hypothalamectomy which is achieved and not a chemical leucotomy, as suggested by Delay and Deniker.[2] Bearing this in mind, and the hypothesis which has been briefly stated, one should not be surprised if (1) chronic, emotionless schizophrenics are little affected and can tolerate large doses, (2) schizophrenics with emotional disturbances are helped most, and this applies whether leucotomy has been performed or not, (3) some patients—those, I suggest, with either an intact hypothalamus or in whom the hypothalamic disease process is inactive—may fail to improve with chorpromazine and yet benefit by leucotomy.—I am, etc.,

Canford Cliffs, Dorset. D. N. PARFITT.

REFERENCES

[1] Miskolczy, D., and Schaffer, K., *Histopathologie des Neurons*, 1938. Leipzig.
[2] Delay, J., and Deniker, P., *Thérapie*, 1953, **8**, 347.

Benzene Hexachloride Nomenclature

SIR,—There would appear to be a widespread misunderstanding which has even appeared in government publications such as *Memorandum on Measures for the Control of Mosquito Nuisances in Great Britain, 1954*, as to the correct description of the insecticidal material known as benzene hexachloride, or, as it is commonly termed, B.H.C.

(gamma isomer). Your leading article (*Journal*, April 2, p. 836) and the refresher course article by Dr. E. F. Edson (p. 841) emphasize the necessity of describing the active constituent by its proper term.

Benzene hexachloride is in strict chemical terminology 1:2:3:4:5:6-hexachloro*cyclo*hexane, and this correct chemical description is commonly used on the Continent. B.H.C. as primarily produced is a mixture of numerous isomers of which the gamma isomer is outstandingly the most active, and it is on the content of this isomer that standardization is carried out. The term "gammexane" is the registered trade mark of one producing company of B.H.C. and for products manufactured by them containing it, and therefore the name gammexane applies only to those products produced by the owners of that trade mark and is not standardized. B.H.C. is now produced almost all over the world in various concentrations of the gamma isomer, and manufactured products containing the insecticide are also widely produced. The pure gamma isomer is now known fairly generally by the term lindane, although this term is not included yet in the British Standard Recommendation for common names for insecticides. None of the names recommended by the British Standards Institution have any proprietary implication, neither has lindane. It is therefore only necessary to indicate the content of gamma isomer B.H.C. in recommendations unless one is anxious to describe the material in the strict chemical form. While there are notable differences in effectiveness between compounded preparations, the use in literature of a proprietary trade mark to describe an insecticidal substance in world-wide manufacture and use is liable to cause confusion and lead to misapprehension, and should be avoided. —I am, etc.,

London, W.C.1. KARL B. EDWARDS.

Night Cramps

SIR,—Your annotation (*Journal*, March 12, p. 653) and Dr. H. R. Odlum's letter (*Journal*, April 2, p. 848) on the above subject encourage me to add some further observations on a condition which may cause much distress. The circumstances under which the cramps show themselves are not at all what might have been expected, for they usually occur after a period of repose, and when the feet are comfortably warm; the early morning hours, after the night's rest, are usually the worst time.

Cold feet in bed are in themselves an affliction, but they have one advantage in that they do not occur simultaneously with cramps. Cold may also be employed to alleviate the cramps when they occur. For this purpose, the bedclothes should be turned back at the foot of the bed, thus forming a kind of potential tunnel or passageway. When cramps occur, the feet should be pushed through this tunnel and the bare soles pressed against the cold varnished surface of the foot-board of the bedstead or of some improvised substitute. The feet should be moved about from one cold surface to another, and movements should be performed stretching the affected muscles. A few moments usually elapse before the cramps disappear, suggesting the effects of a neurovascular reflex, whereby the excitability of the diverse muscle groups is reduced, thus restoring their balance. To obviate recurrence, bedsocks should be removed after an attack and the feet kept cool. Patients sometimes obtain relief by walking about barefoot on a cold surface, but the methods described may be equally effective while causing less disturbance.—I am, etc.,

Sheffield, 10. R. G. ABERCROMBIE.

Manipulation and Low Back Pain

SIR,—In your correspondence column Mr. W. D. Coltart and Mr. H. Osmond-Clarke (*Journal*, March 26, p. 790) and Professor J. H. Kellgren (*Journal*, April 9, p. 910) have not unnaturally inquired as to the progress and ultimate fate of the "missing" 16 patients in our recently published series of patients with low back pain (*Journal*, March 19, p. 705).

These 16 patients consisted of 10 males and 6 females. Ten of this group, dissatisfied and unhappy at our apparent policy of *laisser aller*, sought advice and treatment elsewhere. This consisted of manipulations (usually by private osteopaths), various heat treatments, and occasionally traction of the lumbar spine, so that, although seen for examination, they obviously could not be included in the final figures. Three patients developed signs and symptoms of sciatica with severe pain at rest within three weeks, and were placed in plaster lumbar corsets. The final three, of itinerant habits, have returned to Ireland, and we cannot determine how they fared over the vital six weeks. With regard to patients who were using sagging beds, part of our postural instructions ensured that they used a better mattress or employed plaster boards beneath the faulty mattress whilst under treatment during the period in question.

Drs. P. J. R. Nichols and D. J. E. Cheshire (*Journal*, April 23, p. 1032) write about "historical controls" and the fact that we recorded no accurate diagnosis. For the type of case considered (see "Method"), and the as yet unknown pathology of many such cases (see introduction), we consider that our series was controlled as well as possible. After all, what better end-point than full painless lumbar range of movement and full straight-leg raising? We have simply sought to establish whether or not manipulation has a place in the treatment of recent low backache, and, as our results have shown, we are perfectly aware that treatment by rest and analgesics alone is a very good one indeed. We realize that there is yet a tremendous amount of work to be done on the accurate elucidation of the pathology in all cases of low lumbar pain, with or without sciatica, and sincerely trust that our paper will stimulate interested workers to try and gain further insight into this very controversial subject.—We are, etc.,

A. B. COYER.
London, W.C.2. I. H. M. CURWEN.

Alcohol and Road Accidents

SIR,—As the new *Highway Code* has just been issued with its warning, "Alcohol, even in quite small amounts, makes you less safe on the roads," it seems an appropriate time to call the attention of the profession to a grave defect in all official statistics of road accidents, whether published by the Ministry of Transport, the Registrar-General, or by one of the various accident prevention societies. They all minimize (or omit) the role of alcohol in the causation of such accidents. For instance, in the latest Ministry figures[1] of personal injury accidents (in 1952) out of a total of 114,000 "drivers" accidents only 870 were attributed to motorists and cyclists who were "under the influence." In many reports of local accident prevention societies alcohol is not mentioned, nor does it appear in the Registrar-General's statistics of deaths by violence, and yet, in the opinion of all who have studied the subject, thousands of accidents (and probably hundreds of deaths) are caused annually by intoxicated drivers, pedestrians, and cyclists. The B.M.A. Committee on the recognition of intoxication says "several thousands."[2]

The police reports of all the *fatal* road accidents in Leicestershire and Rutland for 1953 make a sad catalogue of carelessness and needless deaths: There were 77 fatalities, about one-third of them being old people or children carelessly on the road. In only one case was the condition of the road the main cause of the accident; in one sudden illness; and in two cases a burst tyre. All the rest were due to the personal element—carelessness in drivers, cyclists, or pedestrians, in some cases attributable to alcohol. Between 8 and 10 p.m. there were four fatalities, none due to alcohol, whereas between 10 and 12 p.m. there were thirteen, three of them being drunken pedestrians on the road. The other ten were due to drivers, of whom two as I think were certainly intoxicated, one probably so, and three possibly. Between 12 p.m. and 2 a.m. there was only one accident, early on Christmas morning, and due to drink; but it resulted in the death of three youths. My opinion, from

the above small survey, which I hope to supplement, is that at least half the fatal accidents occurring after 10 p.m. in this area in 1953 were due to intoxication in motorists, cyclists, or pedestrians.

None of the above fatalities will be recorded in the official statistics as having any connexion with alcohol, the verdicts being "accidental death" (with a note of the chief injury), even in those cases where the driver was almost certainly drunk. Unless a driver is examined at once and is very obviously drunk, no conviction of intoxication can usually be obtained. In night accidents he seldom is seen at once. The certificate which is sent by the coroner to the registrar of deaths is based on anatomy and according to the chief injury—for example, fracture of skull—and there is no place for "conditions contributing to the death" such as is provided in the ordinary G.P.'s death certificate. The Ministry of Transport's Report also does not get to the root of the matter. It lists over 30 "contributory factors" to "drivers" accidents, but these so-called factors really are the manœuvres or mistakes which lead to the accident, such as "cutting in" or "speeding," the real "contributory factor" at the back of many of them being slight intoxication. In fact, official statistics support the pretence that a drinking driver is only a small danger.

No test for carelessness has ever been devised, other than by numbering the mistakes or accidents resulting, and by this test there is conclusive evidence that slight intoxication makes a man "accident-prone," and that the accident rate rises proportionately to the alcohol in his tissues. For this reason I think that chemical tests as well as clinical tests should be authorized as a routine in the examination of intoxicated persons.—I am, etc.,

Leicester. N. I. SPRIGGS.

REFERENCES

[1] *Road Accidents, 1952*, p. 56, H.M.S.O., London.
[2] *The Recognition of Intoxication*, 1954, B.M.A., London.

Difficulties of Child Adoption

SIR,—I know two patients, a childless married couple aged 49 and 48, who have for the last four years been trying to adopt a girl of about 5 years old from anywhere. After strenuous efforts by myself and their solicitor, they have just been bitterly disappointed for the last time. They have given up in despair because the societies say they have no children available. This I cannot believe, judging from the agonizing letters which we receive from these societies through the post.

I can only attribute the shortage of children to the ridiculously jealous restrictions hedged around the children by the societies, and to an unfounded suspicion of those kindly disposed couples who wish to adopt, and of the medical profession, who often try to bring a child into a home in order to preserve the happiness of that home. The societies will reply "Aha! a child must be required for its own sake, and not in order to bolster up an unhappy home." But why? I should have thought that an otherwise unwanted child which could make an unhappy couple happy would more than justify its existence, and be far better off doing this than merely being an inmate of a home.

My object in asking you to print this letter is to find out if other general practitioners have had similar experiences, or if my problem is an isolated one.—I am, etc.,

North Walsham. P. M. FEA.

Cricket

SIR,—The B.M.A. *v.* Law Society Cricket Match takes place on Sunday, May 29, at Hurlingham Club, London, at 11.30 a.m. I have been asked by Council to make the necessary arrangements on behalf of the Association, so will any members who are active cricketers and who wish to have their names considered please get in touch with me as soon as possible, stating their "potentialities"?—I am, etc.,

The Little House, Broadwater Down, Tunbridge Wells. R. PROSPER LISTON.

POINTS FROM LETTERS

Postcards for In-patients

Dr. R. DOUGLAS HOWAT (London, S.E.24) writes: One of my friends, who has been an invalid, has made out a scheme which, in my opinion, will save money and also undue anxiety, besides easing the calls made upon the overworked members of hospital staffs. The suggestion is that all hospitals should offer their in-patients printed prepaid postcards which they can send to their next of kin. Briefly, such cards would have a list of questions requiring only a "yes" or "no," or, where it is not possible for the patient to do this, a plus or minus sign can be substituted for "yes" and "no." The following questions are suggested: (1) Do you feel better? (2) Are you sleeping better? (3) Do you require any cash? (4) Do you require any cigarettes? Fruit? Chocolates? (5) Do you require any underclothes? (here specify type required); etc. A space would be left at the foot of the card for any additional wants by the patient, also a space for comments by the doctor, sister, or staff nurse. . . . Consider also the enormous saving of unnecessary telephone calls such a system would ensure, also the saving of unnecessary anxiety both on the part of the patient and the relative. Such cards would, of course, require to be of three types—namely, for men, women, and children.

"Topical"

Surgeon-Commander C. J. ROBARTS (B.F.P.O. 51) writes: Is the use of this word in relation to analgesia of the urethra really necessary? Most laymen and at least one doctor understand "topical" to mean "in the news." If your correspondent Dr. B. G. Forrest (*Journal*, March 12, p. 665) used the word "surface," his meaning would be almost as clear to the learned and far clearer to the unlettered.

Night Cramps

Dr. H. ANGELL LANE (Battle, Sussex) writes: Dr. H. R. Odlum's letter (*Journal*, April 2, p. 848) suggests one unusual cause of night cramps, which I observed in my own case. I suffered practically every night for four years from severe cramps, chiefly in the calf muscles. This was during the war. No treatment suggested was of any value. I was 75 years of age and to keep going in my job I took daily amphetamine. I discontinued this in 1946. I also discontinued the cramps. They return only after I take amphetamine again for two or more consecutive days.

Infected Clothing

Dr. G. C. PETHER (Hitchin) writes: When I have a cold my germ-laden handkerchiefs go into one pocket and then another. It is true that the tailors do provide what is known as a handkerchief pocket, but this receptacle, in an inconvenient position and badly designed, cannot hold many handkerchiefs when I have a streaming cold. They wander uneasily from place to place and, presumably, infect my clothes in the process. Would it not be sound to have at least two of our larger pockets lined with a washable material and designed to hold our handkerchiefs and nothing else? They could be wiped out with disinfectants, and presumably our germs would not wander along our waistcoats, braces, and other fittings. Has any work been done to discover what pathogens, if any, are put away with our winter clothes in the spring, to emerge, after a good rest, eager for the fray in the autumn? It would be reassuring to know that this cannot happen. If it can, then some sterilization of the clothes before storage would seem wise.

Tetanus Immunization

Dr. D. N. EVERINGHAM (Guildford, N.S.W., Australia) writes: Your annotation (*Journal*, January 29, p. 278) suggests that active immunization may be preferable in combined vaccines or in armed forces, in view of the risks of horse serum. The main risk of giving serum routinely is that there is less protection, in the event of delayed sporulation, than from toxoid. In any case most patients will have several gravel grazes, punctures by thorns, and contaminated cuts for every major injury which takes them to a doctor, and often they will be more at risk from these than from the "major" injury. This is confirmed by two simple facts: (1) most patients who ask for an anti-tetanus injection have clean or well-opened wounds, or slightly contaminated wounds well flushed by bleeding, or (in this country) dog bites, cuts of a thumb web or other interdigital cleft, or open laceration by a rusty nail (all of which are thought to be tetanus risks); (2) most people to whom anti-tetanus injection is given do not come for that purpose. Therefore I consider I am giving longer, more comprehensive protection by giving toxoid routinely, and recommending a return for a booster on each occasion of a soil-contaminated injury until three injections are given, then a booster for such injuries at three- to five-year intervals.

Obituary

R. DAVIES-COLLEY, C.M.G., M.Ch., F.R.C.S.

We record with regret the death on April 16 of Mr. R. Davies-Colley, which took place at Guy's Hospital, the hospital with which he had been associated as a student and as a member of the staff throughout his professional life. He was 73 years of age.

Robert Davies-Colley was born at Petworth, in Sussex, on August 8, 1881. His father, the late Mr. J. N. C. Davies-Colley, was also on the senior surgical staff at Guy's Hospital. Surgery ran in the family, for Robert's elder brother, Hugh, who died in 1938, was chief surgeon to the Cambridge Military Hospital, Aldershot; and his sister, Eleanor, who died in 1934, was the first woman to obtain the F.R.C.S. of England. From Westminster School Robert Davies-Colley went on to Emmanuel College, Cambridge, taking his B.A. (Natural Sciences Tripos) in 1902. He then continued his medical education at Guy's, qualifying in 1906, taking his F.R.C.S. in 1908 and the M.Chir. the following year. After junior house posts he became obstetric registrar at Guy's, and then demonstrator in anatomy. In 1912 he was appointed to the surgical staff. Among other posts he held at Guy's during the early part of his career were the lectureship in surgical pathology and the curatorship of the museum of the medical school. In due course he became senior surgeon at the hospital, and, on his retirement, consulting surgeon. He was also on the staff of the Florence Nightingale Hospital and the Kent County Hospital, Farnborough, and he acted as consulting surgeon to the London County Council.

During the first world war Mr. Davies-Colley served in France and afterwards as consulting surgeon to the Mesopotamian Expeditionary Force, when he was mentioned in dispatches, and was made Commander of the Order of St. Michael and St. George. After demobilization he was granted the rank of honorary colonel of the Army Medical Services. In the following years he became as well known a London surgeon as his father had been before him, and was appointed examiner in surgery to the University of London and to the Society of Apothecaries. He was also a member of the court of examiners of the Royal College of Surgeons, and Erasmus Wilson lecturer from 1939 to 1946. His contributions to the literature were on general subjects as well as on the subject of surgical pathology, in which he was always keenly interested.

He married in 1908 Emily Crosby Jones, who was a nurse at Guy's and had previously worked at Great Ormond Street Hospital. After her marriage she continued for many years her active voluntary work on behalf of Guy's. Mrs. Davies-Colley died in 1953. They are survived by two daughters.

T. B. L. writes: Everybody called Robert Davies-Colley "Bobby" or "D.-C." rather than by his full name, which came to him from his grandfather, a doctor in Shropshire who inherited some mountain land in Montgomeryshire. His family was a good example of the hereditary principle in medicine, for I think it went back at least one generation further. In his own time there were three Fellows of the Royal College of Surgeons in the family at once. His father had faced a carcinoma of the gall-bladder with stern heroism in 1900, going on with his work as a surgeon at Guy's until his jaundice began to distress his patients. Bobby came up to us from Cambridge three years later, his first task being to work for the Primary Fellowship, which we took together when Arthur Keith was examining for it. He got on the junior staff as obstetric registrar a year before I did; and then we started together the St. Thomas's and Guy's section of the O.T.C., and got up early to learn horsemanship at the riding school in Regency Street. I think his disappointment at not getting on to the staff as an obstetrician lasted, to some extent, all his life, but at that time it looked as though there would be no vacancy for many years. So Bobby slipped over from obstetric registrar to the dissecting-room, as the routine pathway to the surgical staff, and we taught anatomy together till we both were elected to the staff when Charters Symonds went off—the rise of specialism making two vacancies, and these almost at once.

With the war we both found our ways to different parts of the Middle East, and five years later assumed the positions of friendly colleagues with work that no longer brought us together. His great friends were A. S. Blundell Bankart and G. W. Nicholson, and together they formed a trio of intellectual attainment outstanding in the junior staff of the time. D.-C.'s work under Targett and his friendship with Nicholson enabled him to step into the former's place as the leading opinion in the surgical work on the microscopical appearance of a slide, while he was the only man at Guy's who could discuss with Nicholson microscopical pathological anatomy once there had arisen the new cytology which was developing at the end of the first decade of this century. Bankart left us early to become a great orthopaedic surgeon; but D.-C.'s friendship with Nicholson was close and devoted and passed on to the next generation. All three of them came from Cambridge at a time when it was the thing there to suppress all evidence of emotion, including enthusiasm (not that they did not have this). But there were always some who saw through this seeming pose and recognized that in him were high-minded principles upon which there was no weakening; and these men were always in the higher ranks of thinking persons. In this I think he was like his father, for there are still some Guy's men of the 'nineties who have the same high opinion of Mr. J. N. C. Davies-Colley as men of the late 'twenties and 'thirties have of his son Robert. Bobby Colley was capable of great generosities and of small kindnesses, both of which he kept to himself, and of which, as a recipient, I have grateful memories.

W. ARTHUR YOUNG, M.B., D.T.M.&H.

Dr. W. Arthur Young, for many years Rockefeller professor of bacteriology at the King Edward VII College of Medicine, Singapore, died at his home at Westcott, near Dorking, on April 3, a little more than a fortnight before his 65th birthday.

William Arthur Young was born at Blackheath, London, on April 18, 1890, the second son of Mr. H. R. Young. From University College, London—where he graduated B.Sc., with honours, in 1911—he gained an entrance scholarship to Guy's Hospital Medical School, qualifying M.R.C.S., L.R.C.P. in 1914 and winning the Golding-Bird gold medal in bacteriology. He then entered the R.A.M.C. to serve in the first world war as medical officer in charge of a mobile laboratory with the British Expeditionary Force in France and later as director of the pathological department at the Royal Herbert Hospital, Woolwich. After the war he took the London degrees of M.B., B.S., and became pathologist to the Royal Chest Hospital, St. John's Hospital for Diseases of the Skin, and the Grosvenor Hospital for Women.

In 1927—the year in which he obtained the D.T.M.&H.—he was appointed Rockefeller professor of bacteriology at Singapore, becoming also curator of the Keith museum in the King Edward VII College of Medicine.

While at Singapore he devoted all his energies towards creating an efficient department of bacteriology, by training laboratory technicians and by raising the teaching of the students to a much higher standard in both practical and theoretical work. He also took immense pains to help his students solve their difficulties. His laboratory was excellently equipped and always in perfect order, and he was most scrupulous about the way the work of the laboratory was done. Although he carried out many investigations, he published very little; it seemed sometimes that the possibility that some unrecognized error might have influenced his results discouraged him from describing his work in print. He completely reorganized the Keith museum on modern lines and spent much time and hard work investigating the best methods of mounting specimens in the Tropics and in cataloguing exhibits for the benefit of students and visitors. During the second world war he served first in the Royal West Africa Frontier Force and later as lecturer and examiner in pathology at the Royal Army Medical College, Millbank, with the rank of major in the R.A.M.C. After the war he returned to Singapore and in 1946 gave great help in restoring the medical college after the Japanese occupation had virtually destroyed everything except the building. In 1948 he took up the appointment of director of medical laboratories, Western Australia, and retired to this country only last year. He is survived by his widow, formerly Miss Ina Heslop, and a son, who is lecturer in Slavonic studies at Cambridge, and a daughter, a teacher of physiology at St. Thomas's Hospital Medical School.—R. B. H.

R. H. SANKEY, B.M., F.F.R.

Dr. R. H. Sankey, honorary consulting radiologist to the Radcliffe Infirmary, died at his home at Oxford on April 6. He was in his 81st year.

Richard Harvey Sankey was born at Littlemore, Oxford, on June 11, 1874, the son of Dr. R. H. H. Sankey. From Radley College he entered Christ Church, Oxford, in 1893, and received his clinical training at St. Bartholomew's Hospital. He qualified M.R.C.S., L.R.C.P. in 1902 and two years later obtained the degrees of B.M., B.Ch. From 1903–4 he held house appointments at the Radcliffe Infirmary and then settled in general practice at Oxford, where his services were soon much in demand, for he achieved early in his career a reputation both as an obstetrician and as an anaesthetist. In 1908 he became public vaccinator for the city, holding the appointment until 1923, and from 1905 to 1909 he was clinical assistant at the Oxford Eye Hospital, becoming anaesthetist to the hospital in 1909.

Sankey will always be remembered as the pioneer of *x*-ray work in Oxford. In 1907 he was appointed the first radiologist to the Radcliffe Infirmary, where the *x*-ray department began in a very small hut. Later it extended to two small rooms. In the first world war he was radiologist, with the rank of captain in the R.A.M.C., to the military hospital established in the examination schools. After the war the work of the *x*-ray department increased, but not the allotted space, until, in 1933, he planned a new building which forms the present department. He intended to retire in 1939, but on the outbreak of the second world war he agreed to carry on his work, which he did until 1945. In addition to his appointment at the Radcliffe Infirmary, he was also consultant radiologist to Horton Infirmary, Banbury, and to the Oxford County and City Mental Hospital.

A very careful and conscientious worker, Sankey was much interested and particularly skilful in skin therapy, as well as in *x*-ray diagnosis. A very likable man, with a shy and retiring disposition, he was popular with his patients and very considerate to them. He was a long-standing member of the British Institute of Radiology, and in 1936 was awarded the Fellowship of the British Association of Radiologists, now merged in the Faculty of Radiologists. A past-president of the Oxford Medical Society, he served as president of the Section of Radiology when the British Medical Association held its Annual Meeting at Oxford in 1936.

For relaxation Sankey enjoyed shooting: he was also an expert designer and carpenter, and in the summer term he always liked to have a look at the cricket in the University Parks. His well-earned retirement was marred by severe arthritis, which in time prevented him from getting about. He had a host of friends who will treasure his memory, and their sympathy goes to his widow and two sons, one of whom is a doctor.—D. T. B.

Dr. P. S. MARTIN died at Weston-super-Mare on February 20 after a long illness. He was 69 years of age. Philip Stanley Martin was born on January 7, 1886, the son of Dr. E. F. Martin, who died in 1936, and the grandson of Dr. Edward Martin. He studied medicine at University College, London, and at University College Hospital Medical School, qualifying M.R.C.S., L.R.C.P. in 1909. After holding a number of appointments at University College Hospital and a clinical assistantship at The Hospital for Sick Children, he joined his father in practice at Weston-super-Mare in 1912. As a Territorial officer in the R.A.M.C. he was mobilized on the outbreak of the first world war and served in France and in Egypt, in the Dardanelles landings, and in Palestine, where he won the Military Cross at Beersheba in 1918. After the war he took over the practice at Weston-super-Mare, becoming the third generation of his family to practise in the town. He was appointed to the surgical staff of Weston General Hospital in 1919 and worked there until his retirement in 1952, being chiefly interested in orthopaedics. He was a keen supporter of the work of the St. John Ambulance Brigade, being an exceptionally good lecturer himself, and for some years held the post of county surgeon. For his services he was appointed a serving brother of the Venerable Order of St. John of Jerusalem. He was a great family man, and his hobbies included sailing and carpentry. A member of the British Medical Association for 44 years, he was chairman of the East Somerset Division in 1946–7. He will be remembered as an able and kindly doctor, and as one who was always ready to help a younger man. His son, Dr. L. T. Martin, succeeds him in general practice.

The death occurred on April 4 of Dr. A. T. WOOLWARD at his home at Bishopsteignton, South Devon, at the age of 64. Arthur Trevor Woolward was born at Totternhoe vicarage, near Dunstable, on February 13, 1891, and was educated at Haileybury and at Caius College, Cambridge. His medical studies at the London Hospital were interrupted by combatant service in France during the first world war, when he was a lieutenant in the Royal Field Artillery from 1914–16. Returning to the London to finish his medical training, he qualified M.R.C.S., L.R.C.P. in 1917. He then entered the R.A.M.C. and was sent to Mesopotamia, returning home at the end of the war with the rank of captain. Dr. Woolward was resident medical officer at the old Baschurch Home for a time and moved with it to Gobowen, when it became known as the Shropshire Orthopaedic Hospital. In 1923 he returned to practise at Baschurch and afterwards moved to Colston Basset, Nottinghamshire. Ten years later he went back to Shropshire and

practised at Grinshill until 1946, when he retired owing to ill-health. In 1937–8 he was president of the Shropshire and Mid-Wales Branch of the British Medical Association. After the last war he lived at All Stretton, where he was chairman of the local Conservative Association for two years. In 1953 he moved to Devonshire, where it was hoped the milder climate would restore his health. He is survived by his widow, formerly Miss Hilda W. Hunt, of Baschurch, whom he married in 1915.

Dr. R. D. MOORE died on April 8 at Platt, Borough Green, Kent, where he had been living with his married daughter for the past two or three years. He was 88 years of age. Reginald Devereux Moore was born on June 5, 1866, and was educated at King Edward's School, Birmingham, and at St. Mary's Hospital, London, qualifying L.S.A. in 1894. After qualification he served as a ship surgeon on the South African run and then held the appointment of house-surgeon at the North Lonsdale Hospital, Barrow-in-Furness, before entering general practice at Stoney Stanton, near Hinckley, Leicestershire, in 1897. Three years later he moved to Churchdown, Gloucestershire, and there he remained for just over fifty years, some thirty-five of them in general practice. During the first world war he served in the R.A.M.C. and was in his 52nd year when, in 1918, he was awarded the Military Cross for "working continuously for eight days attending to the wounded at an advanced dressing station, often under shell fire. His organization of the work was excellent, and by his courage and cheerfulness he inspired all ranks with confidence, which assisted them materially in the performance of their duties." He was demobilized in 1919, by which time he had attained the rank of major, and returned to his beloved Churchdown, near Gloucester, and not far from his native Tewkesbury, to rejoin his partner, Dr. J. J. Foster. Later, they were joined by Dr. H. S. K. Lowry. The end of the first world war saw the establishment of a number of ex-Servicemen's organizations, and Dr. Moore was chiefly responsible for the foundation of the Churchdown and District United Services Club and was its joint honorary secretary for more than a quarter of a century. Similarly, he encouraged the formation of a local branch of the British Legion, being its president for many years, and for a time he was vice-president of the Legion's East Gloucestershire district. He was also an honorary life member of the British Red Cross Society and the first honorary treasurer of the Churchdown Nursing Association. He held the appointment, rare among rural practitioners, of honorary governor of St. Mary's, his old teaching hospital. He always followed the fortunes of the Gloucestershire Cricket Club with keen interest, particularly the performances of his nephew, Mr. D. N. Moore, the former Oxford captain, who also played for the county. A widower since 1930, Dr. Moore is survived by his younger son and a daughter, his elder son having been killed in action in Flanders in 1917.

Medico-Legal

DEATH FROM MERSALYL INJECTION

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

In October, 1951, Albert William Howse, a warehouse manager, aged 43, was in the Maida Vale Hospital for Nervous Diseases for myelographic *x*-ray investigation for unexplained attacks of sciatica. While there he was given an intrathecal injection of mersalyl in error for "myodil," a lipoid iodine compound. At that time such injections were given in the wards, but subsequently they have been given in the theatre. Both drugs were made up in small capsules.

Mr. Howse was unconscious for five days after the injection, was completely paralysed for some time, and remained in hospital until March, 1954, when he was discharged paralysed below the waist, but able to get about on two sticks. His bowel control was not good, and he was always left with residual urine causing recurrent infection.

In October, 1954, he was readmitted and a left nephrectomy was performed for stones. Efforts to preserve his right kidney were successful until March, 1955. On March 29 he was readmitted with an acute uraemia and pyelonephritis, which did not respond to antibiotics, and of which he died.

At the inquest held at the St. Pancras Coroners' Court on April 6 Dr. Arnold Levene, pathologist of University College Hospital, who carried out the necropsy, gave evidence that death was due to the urinary infection following the paraplegia caused by the intrathecal mersalyl injection nearly three and a half years before.

A verdict of accidental death was returned accordingly.

Medical Notes in Parliament

THE SALK VACCINE IN BRITAIN

The MINISTER OF HEALTH made a statement to Parliament on April 25 about British intentions for the manufacture, testing, and use of the Salk vaccine for poliomyelitis. He said the whole House would wish to congratulate Dr. Salk on what was clearly a momentous and historic advance in the protection of human well-being. The Health Departments and the Medical Research Council had been in close touch with these developments in the United States.

For our part, he continued, we shall go ahead with the increased production of the new vaccine in this country. Two important firms were already arranging to do this as fast as possible, and it was the Government's intention to ask these firms to sell to the Government their whole output, and in due course a Supplementary Estimate will have to be submitted to the House for that purpose. No supplies, in any material quantity, were at present obtainable from the United States. Home production should assume really useful dimensions by the late autumn, and he was advised that in any case it would be medically unwise—even if it were possible—to embark on any large-scale vaccination during the peak season of the disease, which began to end about then.

This new vaccine involved inoculating our children at repeated intervals with a preparation derived from the kidneys of dead monkeys. The House and the country will surely agree that they must carry out intensive tests as to the exact effects so that they could eliminate any possible dangers from it. They were already doing this. They must also make sure that it was effective against the particular strains of the virus most commonly found in this country; indeed, it was not sure yet that it was fully effective in the case of children of about 4 or under, where the incidence of the disease was highest in Britain, and it seemed it might be less than normally effective against Type I of the virus, the commonest type over here. But these reservations did not affect their determination that the people of this country shall benefit from it to the fullest possible extent.

Mr. WALTER ELLIOT (Glasgow, Kelvingrove, Con.) said the whole House would support the decision to have this tested before embarking on large-scale treatment of children. Mr. MACLEOD said that the question of research was one for the Lord President of the Council. He understood that the Medical Research Council was carrying out trials in Southend, Manchester, Sheffield, Belfast, and Glasgow.

Mr. G. DARLING (Sheffield, Hillsborough, Lab.) asked if it was the Minister's view that research should be encouraged in this country to find a more suitable vaccine for our circumstances. Mr. MACLEOD said: "Certainly. This is an important and exciting discovery. It is not necessarily the end of the story. Many people think a killed virus will not prove the most effective. Research on that and other matters is going on."

Mr. H. MARQUAND (Middlesbrough, East, Lab.) said the Opposition would be ready to support a Supplementary Estimate in view of the fact that this was being kept under Government control. He asked if by late autumn the tests would have reached such a stage that inoculation could begin. Mr. MACLEOD said that pilot batches of the vaccine were already available. One would hope that testing would have been finished by autumn, and that substantial quantities of the vaccine—it was difficult to estimate, but perhaps between 500 and 1,000 l.—would be available by the end of the year.

Lady TWEEDSMUIR (Aberdeen, South, Con.) asked if British vaccine would be available for the Commonwealth. Mr. MACLEOD told her that even though supplies were small the House would wish that some of our resources should be sent to other parts of the Commonwealth if required, even if only pilot batches in the first instance.

Mr. SOMERVILLE HASTINGS (Barking, Lab.) asked why the Minister had decided that manufacture should be undertaken by two private firms instead of in national laboratories. Mr. MACLEOD said that he had not decided that. These two firms were going ahead, and it might be that other firms might take it up in due course. He could not think that the Ministry was centrally equipped to undertake the work.

Mr. R. FORT (Clitheroe, Con.) asked for an assurance that the programme would not be held up by a shortage of monkeys. Mr. MACLEOD replied that the major limiting factor for some time, unless a new medium could be discovered, might be a shortage of monkeys. They had taken action to make contact with the Government of India, and the M.R.C. had already sent representatives to Africa to study the possibility of further supplies from there.

Blood Tests for Motorists

Sir HUGH LUCAS-TOOTH, Under Secretary, Home Office, informed Mr. SOMERVILLE HASTINGS (Barking, Lab.) on April 21 that on no occasion last year did a motorist charged by the Metropolitan Police with being under the influence of drink while in charge of a car ask for a blood test. In one case samples of blood and urine were taken by a doctor called on behalf of a person who had been arrested for such an offence. Mr. HASTINGS suggested that this test, which had been largely used in other countries, might usefully be tried out here so that some idea could be obtained of its real value. At present its value seemed to be somewhat uncertain. Would the Minister make this test possible for those who applied for it? Sir HUGH LUCAS-TOOTH said that opinion about the value of blood tests was sharply divided.

Malaria Control in Hong Kong

Mr. LENNOX-BOYD, Secretary of State for the Colonies, replying to Mr. J. RANKIN (Glasgow, Tradeston, Lab.) on April 20, stated that there had been no reduction this year in the medical and health department estimates in Hong Kong. The total medical department estimates for 1955–6 showed an increase of 2m. dollars over 1954–5, and the malaria control vote showed an increase of 12,000 dollars. Mr. RANKIN asked that careful thought should be given to malaria control.

Lead Glazes in Pottery Making

Dr. BARNET STROSS (Stoke-on-Trent, Central, Lab.) asked the Minister of Education on April 21 whether he was aware that although raw lead glazes had been forbidden in the manufacture of pottery made in factories, and that specific restrictions applied to low-solubility glazes, there was no such control when pottery was made in schools or adult education classes. In view of the danger of lead-poisoning to teachers and children, he asked the Minister to ensure that all glazes should be of the leadless type. After 100 years of constant effort the pottery industry had succeeded in getting rid of lead-poisoning. It seemed incredible that raw lead glazes and metallic poisons so dangerous to human beings should be creeping into schools and adult classes. Mr. D. VOSPER, the Parliamentary Secretary, said the Minister was grateful to Dr. Stross for bringing the question to his notice. He was looking into it.

Medical Attention in the Army

Mr. SOMERVILLE HASTINGS (Barking, Lab.) on April 19 asked the Secretary of State for War whether he was aware that on occasions non-commissioned officers refused to allow men in their charge to apply to a medical officer for examination or treatment; and what right of appeal the men had against such refusals. Mr. F. MACLEAN, the Under Secretary, replied that he was satisfied that, in general, no obstacle was put in the way of men wishing to report sick. Every soldier had a statutory right by s. 43 of the Army Act to make a complaint to his platoon or company commander in such a case.

Dentists' Remuneration

The MINISTER OF HEALTH stated on April 21 that he and the Secretary of State for Scotland, after a full investigation into earnings and practice expenses of dentists, had agreed with the British Dental Association on an increase in the present remuneration. The new scale would be designed to give dentists a net income comparable, having regard to the volume of work done, with what they would have received in the period covered by the investigation had the 10% reduction not then been in force. They had also agreed, as an interim measure while the new scale was being worked out, to cancel the 10% reduction in the present scale. It was estimated that the cost of these changes would be about £4.1m. in a full year.

Principals and Assistants

Miss PAT HORNSBY-SMITH, Parliamentary Secretary, Ministry of Health, informed Mr. SOMERVILLE HASTINGS (Barking, Lab.) on April 25 that on July 1 last year 19,300 general practitioners were practising in the Health Service. Altogether 837 doctors practised single-handed, and 614 partnerships employed assistants other than trainees.

Mr. HASTINGS asked whether, in view of the exploitation of assistants by general practitioners under the Health Service Act which had occurred in certain cases, the Minister would limit the increased number on a list to a maximum of 1,500 when an assistant was employed. Miss HORNSBY-SMITH replied "No." The relationship of principals and their assistants could not readily be regulated by statute. In any event the Minister did not think that reducing by 500 the number of additional patients a principal with an assistant might accept on his list would have the effect Mr. Hastings seemed to anticipate.

Mr. HASTINGS said that many doctors had great difficulty in getting the necessary capital to start in practice, and were therefore liable to be exploited by those who employed them as assistants. The figures that had been given showed there was some evidence of that. What was the Minister going to do about it? Miss HORNSBY-SMITH replied that the number had been decreasing, and was not now unduly high. The matter had been considered by the British Medical Association and the Medical Practitioners' Union, but the Ministry had had no decision from them.

Mr. H. A. MARQUAND (Middlesbrough, East, Lab.) said there had been a definite promise by the profession that they would seek to reduce the number of assistants and increase the number of principals. Was the Parliamentary Secretary satisfied that the profession was giving real co-operation? Miss HORNSBY-SMITH said she thought they were co-operating where they felt there was hardship. There had been an increase in partnerships, and a reduction in the number of those who had spent a long period as assistants. Mr. HASTINGS said the B.M.A. were by no means happy about the situation.

Miss HORNSBY-SMITH also told Mr. Hastings that information was not available about the number of doctors or partnerships who had employed the same assistant for five or more years; but on July 1 last year 131 assistants were still in posts which they had taken up before July 1, 1949. Mr. HASTINGS described this as a very serious matter. The figures showed that doctors might derive a good deal of benefit from paying assistants to go on year after year. Miss HORNSBY-SMITH replied that the matter must be kept in proportion. There were 1,504 assistants in July, 1954, and of that number 131 had been in their posts since 1949. On the other side 320 assistants were taken into partnership during last year, and there was a steady increase in the trend towards partnerships.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following degrees were conferred in Congregation on March 5:

M.CHIR.—G. R. C. Peatfield.
M.B., B.CHIR.—*G. Yerbury, A. M. Freeman.
M.B.—*Inez R. Aldous, R. J. C. Pearson, J. A. Dryden.

Professor O. L. Zangwill has been elected into a Professorial Fellowship of King's College.

In Congregation on March 19 the following degrees were conferred:

M.D.—*J. R. Smythies, G. P. Blanshard, and R. Hodgkinson.
M.CHIR.—*P. F. Boreham.

*By proxy.

UNIVERSITY OF LONDON

The degree of M.S. was awarded to D. J. Robertson on March 23.

The degree of Ph.D. in the Faculty of Medicine was awarded to K. C. Basu Mallik on March 16 and to T. W. A. Glenister, M.B., B.S., and M. C. Lancaster on March 25.

UNIVERSITY OF BIRMINGHAM

Professor Solly Zuckerman, F.R.S., will represent the University at the sixth International Congress of Anatomy to be held in Paris in July, 1955.

The title of University Research Fellow in Anatomy has been given to Dr. A. B. Kar, of the Central Research Institute, Lucknow, and in Pathology to Dr. J. S. Howell, who is working for the Birmingham branch of the British Empire Cancer Campaign Committee, the title to be held during the tenure of their present posts.

Mr. A. J. H. Rains, Mr. P. G. Bevan, and Mr. G. Slaney have been appointed Lecturers in Surgery.

UNIVERSITY OF LIVERPOOL

Mr. C. H. de Boer has been appointed a part-time Assistant Lecturer in Clinical Obstetrics and Gynaecology.

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

M.D.—R. Burwell (with distinction).
PH.D. IN MEDICINE.—R. S. Edmundson.
M.B., CH.B.—B. Dawson and M. S. Losowsky (both with second-class honours and distinction in surgery), J. D. Atwell, P. M. Binns, J. M. Challinor, Aileen A. R. Collinson, Patricia J. Corley, R. C. Cotton, A. D. Crew, D. W. Daly, D. De Souza, Jean McG. Exley, R. F. Folkes, Margaret E. Hall, B. McKibbin, Dorothy Mainwaring, D. B. Marshall, G. Mitchell, M. J. Oldroyd, J. F. Poppleton, Ethel A. Richardson, J. B. Richmond, June M. Roberts, Heather Sanderson, D. R. M. Stuart, P. H. Tattersall, C. M. Tonks, P. J. Truesdale, Evelyn Walker, Jean L. Ward, G. Warnes, D. A. Youdale.
DIPLOMA IN PUBLIC HEALTH.—R. Barnes, Mrs. Ruth M. Bowker, E. P. Griffiths, Diana J. Haiste, I. H. Lewis, J. P. Neylon, A. R. Robertson.
DIPLOMA IN PSYCHOLOGICAL MEDICINE.—H. Ellett-Brown, D. McC. MacGregor, A. H. Moyes, N. C. Surya, R. W. Whiteley.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

On April 1 the following candidates were admitted to the Licence of Medicine and Midwifery of the College: C. M. Bahemia, M. J. Doyle, J. B. Fanibunda, M. H. Heller, J. S. P. MacGill, Cecilia M. McMorrow, B. M. Rosovske, Muriel M. Tynan.

INFECTIOUS DISEASES AND VITAL STATISTICS

Summary for British Isles for week ending **April 9** (No. 14) and corresponding week 1954.

Figures of *cases* are for the countries shown and London administrative county. Figures of *deaths* and *births* are for the 160 great towns in England and Wales (London included), London administrative county, the 17 principal towns in Scotland, the 10 principal towns in Northern Ireland, and the 14 principal towns in Eire.

A blank space denotes disease not notifiable or no return available.

The table is based on information supplied by the Registrars-General of England and Wales, Scotland, N. Ireland, and Eire, the Ministry of Health and Local Government of N. Ireland, and the Department of Health of Eire.

CASES in Countries and London	1955					1954				
	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire
Diphtheria	5	0	0	0	3	12	0	3	0	0
Dysentery	1,454	97	330	17	10	1,554	230	399	3	6
Encephalitis, acute	4	0		0		7	0	0	0	
Enteric fever:										
Typhoid	4	0	0	0		6	2	0	0	0
Paratyphoid	13	0	2	0		10	0	4	0	0
Food-poisoning	186	14		1		107	16		1	
Infective enteritis or diarrhoea under 2 years				13	3				13	19
Measles*	26,833	3089	248	389	184	2,293	67	175	61	420
Meningococcal infection	30	5	17	1	2	43	3	12	3	3
Ophthalmia neonatorum	46	3	6	0		36	4	7	1	
Pneumonia†	872	70	170	21	17	516	29	220	4	1
Poliomyelitis, acute:										
Paralytic	3	1	2	0		7	0	0	0	1
Non-paralytic	4	0				3	0			
Puerperal fever§	213	43	11	0		272	26	10	2	
Scarlet fever	665	29	71	51	12	1,374	76	157	35	43
Tuberculosis:										
Respiratory	613	80	130	33		787	80	110	39	
Non-respiratory	75	6	16	2		112	10	20	5	
Whooping-cough	1,310	75	96	40	45	2,462	102	432	46	23

DEATHS in Great Towns	1955					1954				
	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire
Diphtheria	0	0	0	0	1	0	0	0	0	0
Dysentery	0	0		0		0	0		0	
Encephalitis, acute		0			0		0			0
Enteric fever	0	0	0	0		0	0	0	0	
Infective enteritis or diarrhoea under 2 years	8	0	3	1	0	5	1	1	0	1
Influenza	64	4	5	1	10	12	0	1	3	1
Measles		1	0	0	0			0	0	1
Meningococcal infection		1	0				0	0		
Pneumonia	395	45	38	18	13	203	22	27	9	8
Poliomyelitis, acute	1	0			0	0	0			0
Scarlet fever		0	0	0	0		0	0	0	0
Tuberculosis										
Respiratory	75	7	12	0	3	96	12	12	0	8
Non-respiratory		0	1	0	0			3	0	1
Whooping-cough	3	0	0	0	1	3	0	1	0	0
Deaths 0–1 year	278	33	37	9	11	232	22	29	7	15
Deaths (excluding stillbirths)	6,468	825	701	133	200	5,517	758	669	127	186
LIVE BIRTHS	6,934	1053	879	236	263	7,663	1188	930	219	406
STILLBIRTHS	186	19	30			211	28	23		

* Measles not notifiable in Scotland, whence returns are approximate.
† Includes primary and influenzal pneumonia.
§ Includes puerperal pyrexia.

Vital Statistics

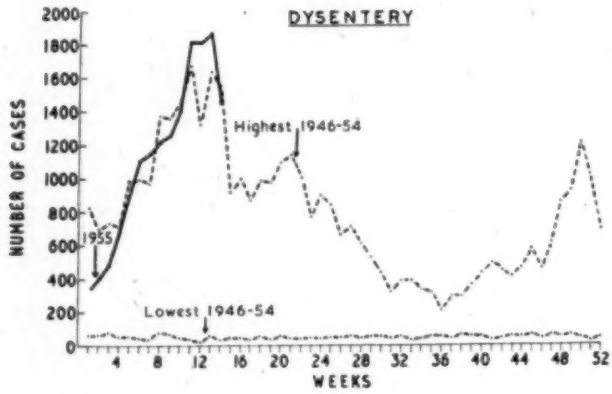
England and Wales in First Quarter

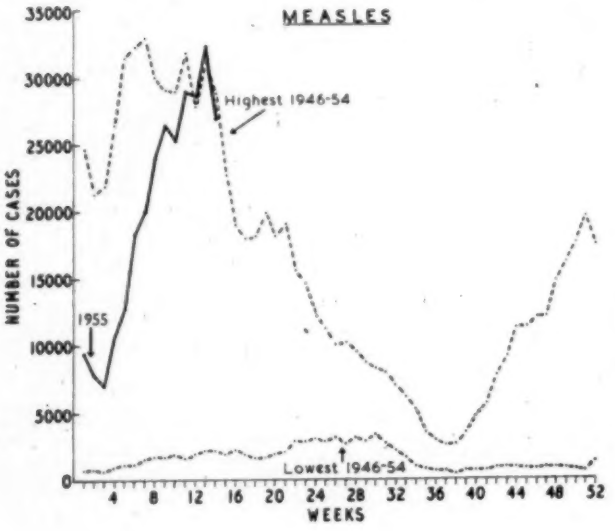
Deaths of children under 1 year of age numbered 4,824, giving a record low infant mortality rate for a March quarter of 29.0 per 1,000 related live births, compared with 31.0 in the first quarter of 1954 (the previous record). In 1938 the corresponding rate was 69.3. Live births numbered 169,361, giving a rate of 15.5 per 1,000 population. Comparable rates for the first quarters of 1954 and 1953 were 15.9 and 15.8. Deaths numbered 168,637, giving a rate of 15.4 per 1,000 population, compared with 14.0 in the first quarter of 1954 and 15.8 in the first quarter of 1953. 3,997 stillbirths were registered, giving a rate of 23.1 per 1,000 live and stillbirths, compared with 23.7 in the corresponding quarter of 1954. The rate for the first quarter of 1938 was 38.3.

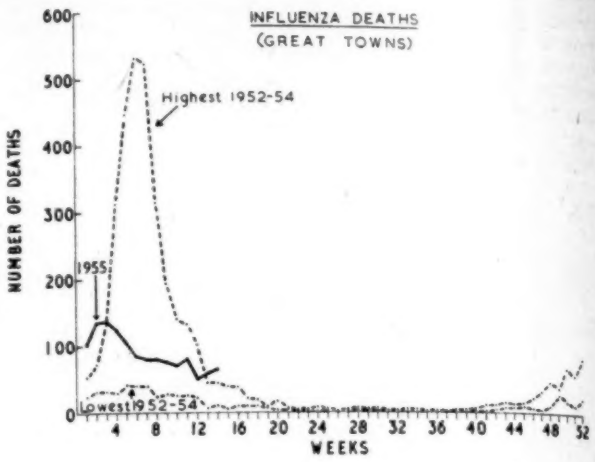
Neonatal Mortality in 1954.—Deaths of infants aged under 4 weeks during 1954 numbered 11,944, giving a rate of 17.7 per 1,000 related live births. This is the same as in 1953 and is the lowest annual rate recorded.

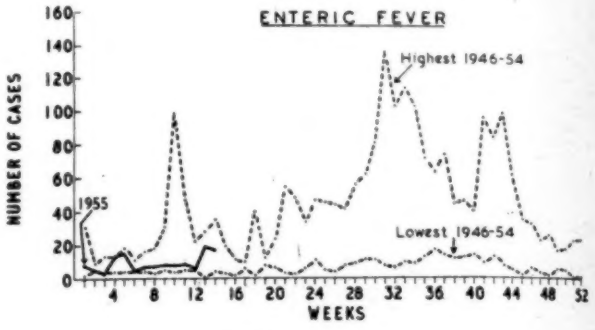
Graphs of Infectious Diseases

The graphs below show the uncorrected numbers of cases (deaths for influenza) of certain diseases notified weekly in England and Wales (great towns for influenza). Highest and lowest figures reported in each week during the nine years 1946–54 (influenza, 1952–4) are shown thus ------, the figures for 1955 thus ———. Except for the curves showing notifications in 1955, the graphs were prepared at the Department of Medical Statistics and Epidemiology, London School of Hygiene and Tropical Medicine.









Infectious Diseases

A large decline was recorded in the incidence of infectious diseases in England and Wales during the week ending April 9. The falls in the number of notifications included 5,491 for measles, from 32,324 to 26,833, 539 for whooping-cough, from 1,849 to 1,310, 415 for dysentery, from 1,869 to 1,454, 178 for acute pneumonia, from 1,050 to 872, and 157 for scarlet fever, from 822 to 665.

The largest falls in the incidence of measles were 1,014 in London, from 4,103 to 3,089, 551 in Lancashire, from 1,849 to 1,298, 468 in Essex, from 2,157 to 1,689, 375 in Kent, from 1,223 to 848, 339 in Surrey, from 1,291 to 952, 322 in Derbyshire, from 1,070 to 748, 308 in Yorkshire West Riding, from 4,115 to 3,807, 293 in Middlesex, from 1,998 to 1,705, 258 in Durham, from 998 to 740, 238 in Cheshire, from 812 to 574, 207 in Warwickshire, from 3,406 to 3,199, 201 in Northumberland, from 846 to 645. The only fall of any size in the trends of scarlet fever was 26 in Lancashire, from 119 to 93. The largest declines in the number of notifications of whooping-cough were 94 in Warwickshire, from 130 to 36, and 81 in London, from 156 to 75. 5 cases of diphtheria were notified, being 4 fewer than in the preceding week; 3 of these cases were notified in Liverpool C.B.

9 of the 13 cases of paratyphoid fever were notified in Lincolnshire (Sleaford U.D. 7, Bourne U.D. 2).

7 cases of acute poliomyelitis were notified, and these were 2 fewer for paralytic and 3 more for non-paralytic cases than in the preceding week. No area had more than one case.

The largest returns of dysentery were Lancashire 479 (Oldham C.B. 117, Manchester C.B. 62, Blackpool C.B. 55, Blackburn C.B. 37, St. Helens C.B. 29, Liverpool C.B. 28, Royton U.D. 22, Chadderton U.D. 21, Salford C.B. 18, Middleton M.B. 16, Lytham St. Anne's M.B. 10), Durham 224 (Easington R.D. 71, Seaham U.D. 54, Felling U.D. 25, Gateshead C.B. 23, South Shields C.B. 22), London 97 (Hackney 23, Shoreditch 23, Islington 17, Camberwell 11), Yorkshire West Riding 92 (Leeds C.B. 44, Huddersfield C.B. 14), Northumberland 90 (Bedlingtonshire U.D. 22, Newcastle-upon-Tyne C.B. 14, Blyth M.B. 13, Ashington U.D. 12,

Newburn U.D. 10), Leicestershire 60 (Leicester C.B. 49), Norfolk 52 (Norwich C.B. 27), Surrey 43 (Banstead U.D. 15, Woking U.D. 15), Yorkshire North Riding 39 (Middlesbrough C.B. 35), Cheshire 36 (Stockport C.B. 25), Warwickshire 34 (Nuneaton M.B. 30), Glamorganshire 23 (Cardiff C.B. 14, Swansea C.B. 9), and Middlesex 20.

Venereal Diseases

In England and Wales during the quarter ending December 31, 1954, 1,360 new cases of syphilis were reported as attending the clinics. Of these 187 were classified as primary, secondary, or latent in the first year of infection. 16 cases of congenital syphilis in children aged under 1 year were reported, and 141 cases in persons over that age. New cases of gonorrhoea numbered 4,419, of chancroid 75, and of non-gonococcal urethritis (males only), 3,374.—*Monthly Bulletin of the Ministry of Health*, April, 1955.

Week Ending April 16

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 597, whooping-cough 1,474, diphtheria 7, measles 32,969, acute pneumonia 804, acute poliomyelitis 20, dysentery 1,191, paratyphoid fever 2, and typhoid fever 2.

Medical News

British Trial of Poliomyelitis Vaccine.—As announced by the Minister of Health in Parliament this week (see p. 1099), there are now sufficient supplies of home-produced poliomyelitis vaccine for a small clinical trial of the vaccine to start in Britain. The centres will be London (St. George's Hospital Group and Southend), Manchester, Sheffield, Glasgow, and Belfast. The arrangements for the trial, due to begin next month, are local, but an M.R.C. committee is co-ordinating the work of the various centres. At each centre, it is understood, two batches of vaccine will be tested, each on 100 to 200 children between the ages of 1 and 12 years. The size of the trial is too small to allow a useful appraisal of the clinical protection afforded by the vaccines: the object is simply to study the antibody response to the three inoculations the children will receive. It is therefore important that those included in the trial should have little or no previous natural immunity to any of the three types of poliomyelitis virus. To check this, antibody titres will be estimated before any child is accepted for the trials; then, if little or no immunity is found, three injections of vaccine will be given, probably the second injection one week after the first, and the third four weeks after that. At the time of the second inoculation the antibody status will again be checked, and the final blood sample taken two weeks after the last inoculation. This will give the immediate antibody response to inoculation. It is possible that later studies of the antibody levels will also be made. Each centre is based on a virus laboratory. The speed and scope of the trials are likely to be governed partly by the availability of non-immune children, partly by vaccine supplies, and partly by the numbers of monkeys available to the laboratories. All parents will be fully informed about the trial beforehand, and only volunteers taken. In view of the nature of the trial no dummy vaccine will be needed for control purposes.

Association of British Pharmaceutical Industry.—The annual dinner was held at the Dorchester Hotel on April 20, and Sir RUSSELL BRAIN, President of the Royal College of Physicians, proposed the toast to the pharmaceutical industry. He spoke of the debt owed by the medical profession to the industry—for the magnificent research which all hoped would increase and prosper; for the day-to-day services provided for the medical profession; and for the kindnesses received by individual doctors and never-failing help to the profession as a whole. The pharmaceutical industry, he emphasized, had the full backing of the medical profession. Mr. J. F. BOUCHER, President of the Association of British Pharmaceutical Industry, proposing the health of the guests, paid a tribute to the research done in university departments and research institutes—work which helped to lay the foundations for new drugs. Referring to pharmaceutical exports, Mr. Boucher said the efforts of the industry were phenomenal considering its size: out of a total annual production worth £120m., no less than £33m. worth of drugs was exported. Replying to the toast, Professor A. ROBERTSON, President of the British Veterinary Association, spoke in lighter vein with overwhelming success.

British Association of Physical Medicine.—The annual dinner was held on April 22 at the Royal College of Surgeons, with Lord HORDER presiding. In proposing the main toast of the evening, Sir JOHN CHARLES, Chief Medical Officer to the Ministry of Health, spoke of the importance of physical medicine in helping to reduce the costs of medical care: it encouraged the patient's recovery and early return to work—for which there was reduced incentive these days. Rehabilitation should be an integral part of all medical practice. "The march of science has varied your armamentarium," Sir John concluded. "Every man is a potential claimant for your skill." Lord HORDER, in reply, emphasized that physical medicine should infiltrate the general practice of medicine much earlier and more deeply than hitherto—long before the point at which rehabilitation began. Physical medicine was not concerned only with certain residues in the population. The British Association of Physical Medicine should have the onus of determining the criteria on which consultant status in physical medicine should be based. Lord Horder added, "I think one of the criteria should be the diploma in physical medicine." Sir WILLIAM GILLIATT responded to Dr. HUGH BURT'S genial speech of welcome to the guests, and made the point that specialists in different branches of medicine often knew all too little about the work of their colleagues in different fields. He recommended, particularly for the older man, a visit to a modern department of physical medicine so as to see the work in progress.

New Antibiotic.—A letter to *Nature* (April 23, p. 722) from Dr. A. T. FULLER of the National Institute for Medical Research, Mill Hill, reports the successful trial of a new antibiotic against haemolytic streptococcal infections in mice. The report says that larger quantities are now being prepared for therapeutic and chemical investigation. The antibiotic is derived from a spore-bearing bacillus isolated from soil from East Africa. It is non-toxic and inhibits *in vitro* the growth of *Staph. aureus, Pasteurella muriseptica*, and *Str. haemolyticus* (Group A) in dilutions, respectively, of 1 in 20, 1 in 50, and 1 in 18 millions.

Opening of Rheumatism Research Unit in Edinburgh.—On April 23 Commander T. D. GALBRAITH, Minister of State for Scotland, opened new buildings to extend the Rheumatic Diseases Research Unit, directed by Dr. J. J. R. DUTHIE, at the Northern General Hospital, Edinburgh. The cost of the buildings (£27,000) has been provided by the Nuffield Foundation from the Oliver Bird Fund, a fund of some £450,000 established by the gift of Captain Oliver Bird for research on the prevention and treatment of rheumatism. In addition, since 1949 the Nuffield Foundation has given £12,000 in grants from the Oliver Bird Fund to support the Unit, and has promised a further £38,000 to meet its running costs during the next five years. The new buildings, which are close to the existing rheumatism beds in the main hospital block, consist of two single-storied units linked by an all-glass entrance hall. They provide accommodation for six consulting-rooms, treatment rooms, laboratories, an animal house, offices, and a conference room. Captain OLIVER BIRD, who is himself severely crippled, was present at the opening ceremony, which was presided over by the chairman of the Managing Trustees of the Nuffield Foundation, the hon. GEOFFREY C. GIBBS.

U.K. Delegation to World Health Assembly.—The United Kingdom delegates and advisers to the eighth World Health Assembly, which opens in Mexico City on May 10, will be: Sir JOHN CHARLES, Chief Medical Officer, Ministry of Health; Sir ERIC PRIDIE, Chief Medical Officer, Colonial Office; Mr. W. H. BOUCHER, Ministry of Health; Mr. J. F. HUNT, Ministry of Health; Dr. M. T. MORGAN, Ministry of Transport and Civil Aviation; Mr. A. E. JOLL, General Register Office; Mr. H. T. MORGAN, H.M. Embassy, Mexico City; Dr. A. A. PEAT, Director of Medical Services, Trinidad; and Dr. J. W. P. HARKNESS, Medical Adviser to the Development and Welfare Organization, West Indies.

Central Midwives Board.—On April 1 a new Board took office for the three-year period until March 31, 1958. At the first meeting, on April 14, Mr. ARNOLD WALKER was elected chairman and Professor A. A. MONCRIEFF deputy chairman. The members of the new Board are: Miss G. M. GODDEN, Dr. I. G. INNES, Mr. G. T. MILNE, Dr. J. A. SCOTT, Miss V. R. SHAND, and Mr. ARNOLD WALKER (appointed by the Ministry of Health); Professor A. A. MONCRIEFF (appointed by the Royal College of Physicians); Professor A. M. CLAYE (appointed by the Royal College of Surgeons); Mr. VICTOR LACK (appointed by the Royal College of Obstetricians and Gynaecologists); Dr. JEAN MACKINTOSH (appointed by the Society of Medical Officers of Health); Miss E. K. BALLY, Miss M. I. FARRER, Miss E. J. MERRY, and Miss M. WILLIAMS (appointed by the Royal College of Midwives); Dr. A. ELLIOTT (appointed by the County Councils Association); and Professor F. E. TYLECOTE (appointed by the Association of Municipal Corporations).

Conference on Psychosomatic Research.—The first European Conference on Psychosomatic Research was held at the Maudsley Hospital on April 22 and 23. Workers from Belgium, Denmark, Finland, France, the Netherlands, Portugal, Spain, Germany, and the United Kingdom attended. It was decided to hold a further meeting in 1956 in Amsterdam. Details of the programme will be announced later.

Honorary Degrees at Glasgow.—At the Commemoration Day celebration on June 21 the honorary degree of LL.D. will be conferred on Dr. R. A. LENNIE, formerly Regius Professor of Midwifery at Glasgow University, and on Professor R. T. LEIPER, F.R.S., Professor Emeritus of Helminthology, London University.

Consultant Pathologist to the Army.—Professor R. J. V. PULVERTAFT, professor of clinical pathology at Westminster Hospital Medical School, has succeeded Professor GEOFFREY HADFIELD as honorary consultant in pathology to the Army at Home.

"Family Doctor."—The May issue, which includes an article by Dr. F. H. K. GREEN on the work of the Medical Research Council, is now available. Among the medical subjects discussed are "Anxiety" (Dr. F. R. C. CASSON) and "Caesarean Births" (Professor J. C. MCCLURE BROWNE).

COMING EVENTS

Institute of Dermatology.—Exhibition on "Cutaneous Reactions Associated with Visceral Malignancy," May 5–25.

Royal Society of Medicine.—150th anniversary dinner at the Dorchester Hotel, London, on June 7. Single ticket 45s. (excluding wines).

Royal Free Hospital Ball.—On June 10 at the Park Lane Hotel, London. Double tickets (including refreshments) £2 15s.

Croonian Lecture.—Professor C. H. BEST, F.R.S., of Toronto University, will deliver this year's Croonian Lecture to the Royal Society, London, on June 16. His subject is "Dietary Factors in the Protection of the Liver, Kidneys, Heart, and Other Organs in Experimental Animals—the Lipotropic Agents."

SOCIETIES AND LECTURES

A fee is charged or a ticket is required for attending lectures marked ●. Application should be made first to the institution concerned.

Saturday, April 30

ASSOCIATION OF CLINICAL BIOCHEMISTS (SOUTHERN REGION).—At Radcliffe Infirmary, Oxford, 2 p.m., meeting. Scientific papers.

Monday, May 2

EDINBURGH UNIVERSITY.—At West Lecture Theatre, University New Buildings, 5 p.m., Dr. D. J. Guthrie: Magic, Witchcraft, and Medicine.

Tuesday, May 3

INSTITUTE OF CHILD HEALTH.—5 p.m., Dr. Bronson Crothers (Boston, Mass.): Methods of Neurological Appraisal in Childhood.

INSTITUTE OF DERMATOLOGY.—5.30 p.m., Dr. F. R. Bettley: Eczema-Asthma Syndrome.

OXFORD UNIVERSITY MEDICAL SOCIETY.—At Radcliffe Infirmary, Oxford, 8.15 p.m., Dr. J. Tarsh: The Negligent Doctor.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 p.m., Croonian Lecture by Sir Horace Evans: Significance of Certain Symptoms and Signs in Disease of the Kidneys.

UNIVERSITY COLLEGE LONDON: DEPARTMENT OF PHARMACOLOGY.—At Physiology Theatre, Gower Street, W.C., 5.15 p.m., Cushny Memorial Lecture by Dr. M. Grace Eggleton: Tubular Reabsorption and Secretion.

WEST END HOSPITAL FOR NEUROLOGY AND NEUROSURGERY.—5.30 p.m., Mr. I. R. McCaul: Intracranial Aneurysm.

WRIGHT-FLEMING INSTITUTE OF MICROBIOLOGY.—5 p.m., Almroth Wright Lecture by Sir Zachary Cope: Some Peculiarities of the Clinical Pathology of Actinomyces.

Wednesday, May 4

EUGENICS SOCIETY.—At 26, Portland Place, W., 5 p.m., Galton Lecture by Sir Cyril Burt, D.Sc.: Meaning and Assessment of Intelligence.

INSTITUTE OF DERMATOLOGY.—5.30 p.m., Dr. J. O. Oliver: Disinfection and Sterilization.

OXFORD UNIVERSITY.—At Radcliffe Infirmary, 5 p.m., Litchfield Lecture by Professor B. G. Maegraith: On the Importance of Having a Circulation.

ST. MARYLEBONE HOSPITAL FOR PSYCHIATRY AND CHILD GUIDANCE.—5.30 p.m., Dr. Colman Kenton: Management of the Psychiatric Emergency.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.—At Wright-Fleming Theatre, 5 p.m., lecture-demonstration in psychiatry by Dr. J. A. Hobson.

Thursday, May 5

●FACULTY OF HOMOEOPATHY.—At the Barnes Hall, Royal Society of Medicine, 3 p.m., Hahnemann's 200th Birthday Celebration. Oration by Dr. F. H. Bodman: Hahnemann and His Patients; Dr. T. D. Ross: Homoeopathy's Heritage and Outlook To-day.

HONYMAN GILLESPIE LECTURE.—At University New Buildings, Edinburgh, 5 p.m., Mr. E. L. Farquharson: Early Ambulation and its Contribution to Surgery.

INSTITUTE OF NEUROLOGY.—5 p.m., Dr. Bronson Crothers (U.S.A.): Adaptation of the Patient and the Family in Cases with Severe Extrapyramidal Disturbance in Cerebral Palsy.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 p.m., Croonian Lecture by Sir Horace Evans: Significance of Certain Symptoms and Signs in Disease of the Kidneys.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5.30 p.m., Otolaryngology Lecture by Sir Clement Price Thomas: Some Aspects of Suppurative Disease of the Lungs.

ST. ANDREWS UNIVERSITY.—At Physiology Department, Medical School, Small's Wynd, Dundee, 5 p.m., Dr. A. H. T. Robb-Smith: Extracellular Tissue in Health and Disease.

Friday, May 6

●INSTITUTE OF DERMATOLOGY.—5.30 p.m., clinical demonstration by Dr. R. T. Brain: Skin Diseases in Children.

INSTITUTE OF DISEASES OF THE CHEST.—5 p.m., clinical demonstration by Dr. J. G. Scadding.

NEWCASTLE REGIONAL CHEST SURGERY CENTRE.—At New Lecture Theatre, Royal Victoria Infirmary, Newcastle-upon-Tyne, 5.30 p.m., 15th Rutherford Morison Lecture by Professor C. Crafoord (Stockholm): Diagnosis and Surgical Treatment of Inter-Atrial Septal Defects. (Illustrated by a film.)

ST. MARY'S HOSPITAL MEDICAL SCHOOL.—At Wright-Fleming Theatre, 5 p.m., Dr. Reginald Lightwood: Care of the Premature Baby.

UNIVERSITY COLLEGE LONDON: DEPARTMENT OF PHARMACOLOGY.—At Physiology Theatre, Gower Street, W.C., 5.15 p.m., Cushny Memorial Lecture by Professor F. R. Winton: Physical Factors Affecting Renal Function.

Saturday, May 7

INSTITUTE OF LARYNGOLOGY AND OTOLOGY.—12 noon, special lecture by Professor Fritz Zöllner: Diagnosis and Treatment of Tympano-sclerosis.

WEST MIDLANDS PHYSICIANS ASSOCIATION.—At Warneford General Hospital, Leamington Spa, 11 a.m., spring meeting.

Sunday, May 8

SIGERIST SOCIETY.—At 45, Russell Square, W.C., 3 p.m., debate between Dr. Stephen Taylor and Dr. Hugh Faulkner: Health Centres and the Future of General Practice.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Crawford.—On April 8, 1955, to Jeanne, wife of Dr. I. B. Crawford, a brother for Belinda Jane—Steven Andrew.

Dunn.—On April 18, 1955, at Birmingham Maternity Hospital, to Sylvia (formerly Matheson), M.B., B.S., wife of Andrew Dunn, L.D.S., Flight Lieutenant, R.A.F., a daughter—Ailsa Margaret.

Hetherington.—On April 17, 1955, at St. Mary's Hospital, Manchester, to Pamela Marjorie (formerly Baird) and Dr. Harold Dudley Grindley Hetherington, a son—Hugh Vincent Grindley.

McEwen.—On April 18, 1955, at Redlands Hospital, Glasgow, to Dr. Jean (formerly Mann), wife of Dr. Malcolm McEwen, twin sisters for Alasdair—Fiona and Morna.

Tasker.—On April 14, 1955, at Northampton, to Anita, wife of Dr. J. R. Tasker, a daughter.

DEATHS

Moore.—On April 8, 1955, at Pigeons Green, Platt, Borough Green, Kent, Reginald Devereux Moore, *M.C.*, L.S.A., L.M.S.S.A., formerly of Churchdown, Cheltenham, Glos, aged 88.

Any Questions ?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Appendicitis at Sea

Q.—*How should a single-handed ship surgeon deal with acute appendicitis ?*

A.—The management of appendicitis by a single-handed ship surgeon would depend very much upon circumstances —for example, if the ship is in port, or if there is a surgeon among the ship's passengers, it would be easy for him to arrange an immediate consultation or operation. A decision to treat appendicitis conservatively in the first 48 hours of the disease must always involve some risk that the peritonitis will spread. This risk is commonly, and I think correctly, regarded as greater in children, undernourished adults, and old people than it is in healthy adults. An age limit below which the risk is prohibitive cannot be stated. In every case the risk of conservatism must be balanced against the risk of operation performed by an unskilled single-handed practitioner.

The question suggests that the ship is some distance from port, and that professional help is not available. Under such circumstances the patient should be kept propped up in bed, without food or fluid by the mouth, and should be given repeated small doses of morphine—1/6 gr. (10 mg.) four hourly for a previously healthy adult. Morphine may be used in the conservative method of treatment at any age provided the dose is carefully regulated, the most important evidence of over-dosage being slowing of the respiratory rate. Between the ages of 1 and 3 years the dose of morphine sulphate is from 1/48–1/24 gr. (1–2.5 mg.); between 3 and 6 years 1/24–1/12 gr. (2.5–5 mg.); between 6 and 12 years 1/12–1/6 gr. (5–10 mg.). Water should be administered by rectal drip, a small quantity of salt (to make a solution of 0.18% NaCl) being added if the patient is sweating; by this method he may be kept sufficiently hydrated until signs and symptoms indicate that feeding may be commenced by the mouth. Though I do not regard antibiotics as an essential element in the conservative regime, intramuscular injections of penicillin and streptomycin are generally regarded as being of value in combating such an intestinal infection, and could be given during the period when nothing is allowed by the mouth.

Under this treatment the attack is likely to subside completely; or an abscess may form in the neighbourhood of the appendix which may rupture into the bowel, or may require simple drainage. On most voyages this operation can be delayed till port is reached, but if it became a matter of necessity it could be undertaken with very little skilled assistance.

Toxic Dose of Methylpentynol

Q.—*A patient is to my knowledge obtaining seventy-five 250-mg. capsules of methylpentynol a week. What are the immediate and long-term dangers of excessive dosage? Does addiction occur? What control is there over the dispensing of the drug?*

A.—The patient is obtaining a total of 18.75 g. of methylpentynol a week, and therefore takes from 2.5 to 3 g. each day. Doses up to 2 g. a day have been taken for long periods without harm, but doses above 4 g. daily may be toxic, and 10 g. a day has caused severe poisoning. In one case death may have been caused by an amount between 4 and 6 g.

Toxic symptoms disappear completely within 48 hours after discontinuing the drug. May and Ebaugh[1] say that the total dose in 24 hours should be kept below 5 g., and that toxic effects are likely to develop if doses between 5 and 6 g. are given for more than two or three days.

The Council of the Pharmaceutical Society has advised pharmacists not to supply methylpentynol without a doctor's prescription (July 31, 1954), but a recent letter to the medical press[2] states that the drug is still widely used without a prescription. Neurotic patients and alcoholics often take excessive amounts which produce a confused and highly emotional state with slurring of speech and ataxic gait, but there is no evidence of true addiction. In a case described by Schaffarzick and Brown[3] methylpentynol was given as an anticonvulsant in epilepsy for six weeks; this resulted in impaired liver function as shown by a positive cephalin flocculation test.

REFERENCES
1 *Amer. J. Psychiat.*, 1953, **109**, 887.
2 *Lancet*, 1955, **1**, 308.
3 *Science*, 1942, **116**, 663.

Mumps in Early Pregnancy

Q.—*What increased risk is there of a deformed or blind baby following mumps in the early months of pregnancy? What is the generally accepted attitude to-day towards termination of pregnancy in such a case?*

A.—Foetal malformation, abortion, intrauterine death, and premature labour are ascribed to mumps as well as to other virus diseases, provided they occur within the first 12 weeks of pregnancy. The situation in regard to rubella is fairly well established and is not considered here. In regard to other virus infections the number of cases in individual reports is small and the evidence is not of statistical significance. A review of the literature on this subject was published by B. M. Kaye, D. C. Rosner, and I. F. Stein,[1] and they concluded that there is a 20% risk of foetal malformation among mothers contracting virus diseases other than rubella *in the first trimester* of pregnancy. When they considered mumps alone the risk was similar. So far as this country is concerned there is as yet no evidence which permits a firm conclusion that mumps is a cause of foetal malformation.

Even if it is believed that mumps can impair foetal development it still remains doubtful whether it constitutes an indication for therapeutic abortion. As the law stands in this country abortion is not justified in the interests of the foetus, but only in the interests of the mother. There might be an indication if the expectation of foetal malformation were so high as to cause the mother such anxiety as to threaten her health, but each case would have to be judged separately.

REFERENCE
1 *Amer. J. Obstet. Gynec.*, 1953, **65**, 109.

Myoclonus on Falling Asleep

Q.—*What is the likely cause, significance, and treatment in a woman of 55 of kicking and twitching movements of the legs on falling asleep? They go on for half an hour to an hour. There have been no painful cramps in the legs. Treatment with sodium phenobarbitone 1 gr. (65 mg.) at night has not been very successful in controlling them.*

A.—The condition of myoclonus occurring as a person is falling asleep is one of the hypnagogic experiences that are common in normal people. These may also take the form of visual or auditory hallucinations, and the experience may sometimes be multisensorial, so that a loud bang is both heard and felt. These phenomena usually occur only once and then the person falls asleep. At times, and particularly during stress or as an accompaniment of a neurosis, they may be repetitive and totally prevent sleep.

These disturbances of the central nervous system are not epileptic in nature but fall into the group of disorders of which narcolepsy, cataplexy, and sleep paralysis are components. They are most difficult to treat apart from the relief of the overlying nervous state, and I usually give a large dose of a short-acting barbiturate half an hour before the patient intends to retire so that sleep rapidly supervenes. Once the patient is asleep, he is safe from the myoclonus.

Sulphone Poisoning

Q.—*What are the symptoms of poisoning by swallowing an overdose of one of the sulphone group of drugs? Is there any specific antidote? Apart from the usual emergency measures of giving emetics and gastric lavage, what should be the general treatment of such a case?*

A.—The symptoms of sulphone toxaemia are varied. The chief toxic effects are anaemia, dermatitis, hepatitis, and psychosis.

Anaemia is detected in the usual way, but it must be remembered that the anaemia which is produced by sulphone therapy, particularly by the oral administration of the tablets, may be very sudden, and therefore if the weekly dose is above 800 mg. a week regular haemoglobin estimations should be done at least every fortnight. With lower doses this is not so necessary. In any case it is wise to combine oral sulphone with iron in some form or other and also with a preparation of vitamin B complex. If anaemia is severe, sulphone therapy must be stopped at once. If it is not severe and there is only a comparatively small drop in the haemoglobin index, the sulphone doses should be reduced and iron and vitamin B complex should be supplemented.

Dermatitis starts as a general itchiness of the skin, followed by a slight scaling. Sometimes there are rashes which are usually papular. If this is not noticed the condition may go on to an exfoliative dermatitis and the patient becomes seriously ill and his life endangered. On any symptom of itchiness or irritation of the skin, particularly if there is any observable lesion noticed, sulphone should be stopped at once and antihistamines given. In very severe dermatitis, where the patient's life is in balance, cortisone has been a life-saving measure, but this must be used very cautiously and with due consideration to all the other factors.

The first symptom of hepatitis is usually that the patient feels unwell and is unable to take his food. There is also nausea. If the hepatitis goes on to the more severe forms, urobilin appears in the urine and there may be liver tenderness and actual jaundice. The remedy is to stop sulphones at once and treat as for any acute hepatitis due to a toxin.

Psychosis is not common, but it starts with sleeplessness, and if a patient who is taking sulphone is complaining of sleeplessness then sulphones should be stopped and sedatives given.

Once there have been any manifestations of a severe toxaemia due to sulphone therapy D.D.S. orally should be stopped, and personally I prefer the patient to receive a 50% solution of solapsone ("sulphetrone") parenterally, starting at 0.25 ml. once a fortnight and increasing by 0.25 ml. each fortnight until 1 ml. a fortnight is reached. Then increase by 1 ml. at monthly intervals until 3 ml. twice a week is given. Solapsone should not be given by mouth, as it is expensive and is only broken down to the parent substance. Solapsone when injected as the 50% solution is broken down to a mono-substituted sulphone, and therefore is not so toxic as the mother substance.

There is no antidote for sulphone poisoning so far as I know. It should be treated on general lines with eliminative treatment and stoppage of the drug. The golden rule in sulphone therapy is to remember to start at a very low dose and increase very gradually. The optimum dose is about 400 mg. twice a week, and ordinarily should not be exceeded.

Effects of Prolonged Thyroid Administration

Q.—*I often find that depressed elderly women are helped by small regular doses of thyroid. How rapidly is thyroid metabolized in the body? Is there any danger of depressing pituitary thyrotrophic activity after prolonged dosage, with consequent rebound phenomena on withdrawing treatment?*

A.—The duration of action of a single dose of thyroid hormone occupies a period of 50 to 70 days, this being the time taken for the metabolism and complete elimination of the hormone. Since the patients in question are benefited by small doses of thyroid, it may be concluded that they are slightly hypothyroid. The small doses given will therefore replace the amount in which they are deficient, bringing the blood thyroxine up to the normal level. This will cause depression of pituitary thyrotrophic activity to normal limits, for prior to the administration of thyroid the secretion of thyrotrophin would have been somewhat increased as a result of the lowered blood level of thyroxine. If too large a dose of thyroid is given abnormal depression of thyrotrophic secretion will take place and the patient's thyroid gland will produce correspondingly less thyroid hormone. In these circumstances sudden withdrawal of thyroid after a prolonged period of administration will result in a *temporary* increase in the hypothyroidism.

Risk of Fire During Oxygen Therapy

Q.—*Is there any danger of explosion or fire when oxygen is administered by means of the usual sort of equipment to a patient at his home or in a hospital ward?*

A.—Oxygen itself does not burn, but in its presence any inflammable object burns more readily and with more vigour. Oxygen therapy should therefore not be conducted in the presence of any source of ignition. Smoking, open fires, gas rings, and so forth should all be prohibited in a room where oxygen therapy is being administered. A spark from a cigarette or fire, in the presence of oxygen, might easily set fire to bedclothes or to the material of an oxygen tent. It is a wise precaution to exhibit a notice, such as "Danger—Fire. Smoking Forbidden," in the vicinity of a patient receiving oxygen therapy.

NOTES AND COMMENTS

Prognosis and Treatment of Asthma in Children.—Mr. T. S. ALLEN (Hove) writes: In answering this question ("Any Questions?" March 26, p. 801) your expert did not comment upon one very important point in the history: this child had whooping-cough at the age of 2. He should certainly be seen by an oto-laryngologist, since chronic tonsil sepsis is an almost invariable legacy of whooping-cough in early life.

OUR EXPERT writes: Although it is not my experience that there is an invariable relationship between whooping-cough and tonsil sepsis in early life, the answer included the suggestion (to a doctor regarding his son) that "the advice of an ear, nose, and throat specialist might be obtained." The role of whooping-cough as a causative factor in asthma has long been the subject of conjecture and controversy. In a study of 250 asthmatics and 250 controls the writer (with colleagues) found a previous history of whooping-cough in 80 (32%) of the asthmatics and 73 (29%) of the controls. The controls were matched for age and sex and were questioned regarding illnesses they had experienced before the date of onset of asthma for the patient with whom each was matched. There appears to be no significant difference.

Correction.—Dr. Jonas E. Salk and his staff developed the poliomyelitis vaccine at the University of Pittsburgh, not Michigan (*Journal*, April 23, p. 1016).

Books of "Any Questions?"—The second and third volumes of "Any Questions?" are available, price each 7s. 6d. (postage 6d.), from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1, or through any bookseller. Each contains some 200 selected expert answers, and the third volume a cumulative index to the three published books.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 4499. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.
Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs.
ADVERSTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 4499. TELEGRAMS: *Britmedads, Westcent, London.*
MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 4499. TELEGRAMS: *Medisecra, Westcent, London.*
B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.